THE REVIEW

DEVOTED TO THE INTERESTS OF THE AMERICAN SOCIETY FOR STEEL TREATING

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EXPECT RECORD CROWDS AT METAL CONGRESS

UNANIMOUSLY MOVE TO RENAME A.S.S.T.

Directors Meet, Recommend "American Metals Society"

The following are the minutes of the meeting of the A.S.S.T. Directors, held in Cleveland on Aug. 4, 1933.

Present:

W. B. Coleman
W. H. Phillips
W. H. Eisenman
A. T. Clarage
A. H. d'Arcambal
H. D. McKinney
C. F. Pascoe
R. S. Archer
H. G. Keshian

Upon motion made by Mr. d'Arcambal, seconded by Mr. Clarage and unanimously carried, the minutes of the previous meeting were approved.

The treasurer then presented the following reports:

Profit and loss, first half, 1933.
Balance sheet to July, 1933.
Accounts receivable, July 1, 1933.
Investment report, July, 1933.
Budget for last half 1933.
Budget for 1933 National Metal Congress.

Treasurer Clarage then presented a report of the meeting of the finance committee in Cleveland, August 3.

Upon motion by Mr. McKinney, seconded by Mr. d'Arcambal and unanimously carried, the recommendations of the treasurer and the finance committee for the sale of certain bonds, as indicated in the treasurer's report, and the reinvestment of the funds, as indicated in the same report, were authorized.

Upon motion by Mr. d'Arcambal, seconded by Mr. Phillips and unanimously carried, the financial report of the treasurer and the report of the meeting of the finance committee were accepted.

The secretary then presented a report on the progress of the National Metal Congress, indicating that the following societies were cooperating in the program: Iron and Steel Division, American Institute of Mining & Metallurgical Engineers, Institute of Metals Division, American Institute of Mining & Metallurgical Engineers, American Welding Society, Wire Association, American Society for Steel Treating.

A tentative schedule of the papers to be presented by the A.S.S.T. at the Detroit congress was given to the board.

A report was then given dealing with the plant inspection, the arrangements for the banquet, entertainment, and other items of the congress and exposition.

(Continued on Page Eight)

"BOOK OF STAINLESS STEELS" HAS 600 PAGES, 75 AUTHORS

Compiled Especially for Users

The "Book of Stainless Steels"—almost 600 pages of practical information on the stainless steels made and used in this country, will make its appearance shortly after October 1. It is published by the American Society for Steel Treating.

Chapters have been written by 75 recognized authorities, each describing the particular aspect of manufacturing, treating, fabricating, finishing, or using the many types of American stainless and heat resisting steels. Ernest E. Thum, editor of *Metal Progress*, has edited the compositions of these 75 authorities into a unique and authoritative volume.

The ever widening field of use for stainless steels indicates that the "Book of Stainless Steels" will find its way into almost every industry from the manufacture of artificial silks to the building of heavy construction machinery. A man does not have to be a highly trained metallurgist to read and profit from the "Book of Stainless Steels" but, on the other hand, even the most highly trained metallurgist will find plenty of useful information in the volume.

The "Book of Stainless Steels" sells for $5.00 a copy. It is bound in red cloth and is 6x9 inches. An order blank appears on an inside page of this issue.

RAIL RATES LOWER THAN EVER TO AND FROM 1933 CONGRESS

Only 1⅓ Fares for Round Trip

The round trip rail rates to and from the National Metal Congress and Exposition in Detroit the week of Oct. 2 will be even lower this year than before.

Members of the various Societies cooperating in the Congress and exhibitors at the Exposition may, by using the special identification certificates already sent them, make the round trip for only one and one-third fares. This new low rate also permits a thirty-day stop-over in Detroit, with the privilege of returning by a different route than used to get there.

Before returning, the certificates must be validated by the station agent in Detroit.

In addition to the rail service to Detroit there is direct airplane service to the convention city from all parts of the country.

Information on fares and schedules can be obtained by inquiry at any office of the United Air Lines, or reservations can be made at any Western Union or Postal Telegraph office without additional charge.

A.I.M.E. DIVISIONS IN 2-DAY MEETING

Institute of Metals, Iron and Steel Members Have Program

Two divisions of the American Institute of Mining and Metallurgical Engineers will hold meetings during the National Metal Congress in Detroit. Hotel Statler has been chosen as headquarters.

On Wednesday, October 4th, a joint technical session of the Iron and Steel Institute of Metals divisions will take place at 2 P. M. In the evening both divisions will join in a dinner and will hear A. V. Kinzel of Union Carbide and Carbon Research Laboratories speak on the subject of "Silicon."

On Thursday, October 5th, the Institute of Metals is planning a round table discussion devoted to the use of non-ferrous metals in the automotive industry, led by a number of prominent men in the field.

Iron and Steel division is likewise planning a Thursday morning meeting at which three technical papers will be presented.

The executive committees of both divisions will hold separate luncheon meetings at noon.

Thursday afternoon will see the final technical session of the Institute of Metals and a meeting of the Sub-committee and Advisory Council on the terminology of impurities in metals. This meeting will be open to all interested.

WIRE ASSOCIATION'S MEMBERS AGAIN MEET DURING CONGRESS

Plan Several Fine Sessions

Every wire mill production executive engaged in the manufacture of rod, wire and strip or the fabrication of wire and wire products is looking forward to the annual meeting of the Wire Association in Detroit, October 3, 4, and 5, during the National Metal Congress and Exposition.

Headquarters of the Wire Association will be at Hotel Book-Cadillac, and all sessions will be held there. Many of the exhibits in the National Metal Exposition, at Convention Hall, will be of great interest to wire men.

The Wire Association's program includes technical sessions on steel and non-ferrous metal wire drawing. One brief paper will be presented at each session, the rest of the time being devoted to organized, open discussion. The Association's annual business meeting will take place on Wednesday, October 4.

Informal meetings at the Association's headquarters in the Book-Cadillac will be held every evening during the week.

A. S. S. T. HEADQUARTERS

Above is Hotel Statler in Detroit which, from October 2-6, 1933, will be headquarters for the A.S.S.T., A.I.M.E., and A.S.M.E. Rates for single rooms range from $2.50 to $6.00; double room with double bed, from $4.50 to $8.00; twin bedded rooms from $5.00 to $8.00. Reservations for rooms during the National Metal Congress should be sent direct to the Hotel Statler in Detroit as soon as possible, for a great demand for accommodations is anticipated

PROGRAM OF A.W.S. HAS WIDE APPEAL

Annual Fall Meeting Expected to Break Previous Records

American Welding Society is holding its 13th annual fall meeting this year in Detroit during the National Metal Congress, Oct. 2-6. An unusually large attendance is expected due to the high quality of the technical program and the large number of welding exhibits in the National Metal Exposition.

Hotel Book Cadillac has been chosen as A.W.S. headquarters during the Congress and Exposition. Registration will begin there on Monday, Oct. 2, and will continue through the week from 9:30 A. M. to 5:00 P. M.

The first session will open Monday afternoon when M. P. Bailey, chairman of the Detroit Section, will welcome the visiting A.W.S. members. F. P. McKibben, president of the Society, will preside at the technical session. A dinner meeting of the board of directors will be held in the evening.

Sessions will be held on Tuesday morning and afternoon, with J. J. Crowe, senior vice president of the A.W.S., and C. A. Adams, director of American Bureau of Welding, as chairmen. The afternoon meeting will consist of papers relating to fundamental research in welding.

Resistance welding will be covered at the Wednesday morning session over which R. E. Powell of Western Electric Co. will preside. Several plant inspection trips are scheduled for that afternoon.

Thursday, the last day of A.W.S. meetings, will bring two technical sessions and the annual banquet, which will be followed by dancing.

A. S. S. T. MEMBERS

Copies of the 1933 edition of National Metals Handbook will be sent beginning Oct. 10 to members of the A.S.S.T. in good standing who have returned their 1930 editions to the National Offices, 7016 Euclid Avenue, Cleveland.

Mailing of the 1933 Handbooks begins October 10. New books will be shipped to each member upon receipt of his 1930 copy.

UNUSUAL INTEREST IN SHOW AND PROGRAMS DRAWING THOUSANDS TO DETROIT OCT. 2-6

Five Technical Groups Join With A. S. S. T. In Congress; Exposition More Than 50% Larger Than Last Year

Nearly 60 fine technical papers recording this year's tremendous achievements in theoretical and practical metallurgy; elaborate exhibits by producers of ferrous and non-ferrous metals and manufacturers of all types of equipment for treating, fabrication and finishing; a schedule of plant inspection trips covering Detroit's most interesting industrial plants; a full program of pleasing entertainment for the ladies—these explain why the 15th annual National Metal Congress and Exposition are expected to attract record-breaking crowds to Detroit from October 2 to 6, 1933.

Five national technical groups are cooperating with the American Society for Steel Treating in the National Metal Congress and each will sponsor separate programs. The A. S. S. T. will hold ten sessions during the week, presenting 30 papers.

The Institute of Metals and Iron and Steel divisions of American Institute of Mining and Metallurgical Engineers are holding 4 technical sessions, at which 14 papers will be presented, and a joint dinner of the two divisions. The American Welding Society has scheduled 29 papers on its 7 sessions, and will hold a banquet on Thursday night, October 5.

The Wire Association is planning an extensive 3-day program for its members which will include a business meeting, technical sessions and informal gatherings. American Society of Mechanical Engineers has arranged a session for Wednesday afternoon which will consist of two papers and a trip through the plant of the Kelvinator Corp.

Titles of papers and authors on these programs will be found elsewhere in this issue. Headquarters of the A. S. S. T., A. I. M. E., and A. S. M. E. will be Hotel Statler. The A. W. S. and the Wire Association are meeting at the Book Cadillac Hotel.

Detroit's famous Convention Hall will be the scene of the National Metal Exposition, which promises to be the finest since 1929. The exhibitors, a list of whom is printed on another page, will occupy 50 per cent more space than was used in the 1932 show. New developments in materials and equipment will be seen on every side, while equally important will be the exhibits of standard products which have long since been developed to the highest point. Exposition hours will be from noon to 10 P. M. every day except Thursday, when closing time is 6 P. M.

Arrangements have been made with 20 Detroit plants to permit visitors to the National Metal Congress to inspect their most interesting departments and processes. Details may be found elsewhere.

An annual feature of the A. S. S. T. program is the Campbell Memorial Lecture delivered by an outstanding metallurgist. The 1933 Campbell lecture will be given Wednesday morning, October 4, by H. J. French, in charge of alloy steel and iron development for International Nickel Co. Mr. French has prepared a paper from investigations he has just concluded, the title of which is "Fatigue and Hardening of Steels."

PAPERS AND PLANT VISIT ON A. S. M. E. PROGRAM FOR OCT. 4

Interesting Meeting Planned

One of the features of the fifteenth annual National Metal Congress will be the A.S.M.E. meeting on Wednesday, Oct. 4, under the auspices of the Machine Shop Practice division.

A. N. Goddard, of Goddard & Goddard, Detroit, will act as chairman of the technical session in the morning in the Henry II Room of Hotel Statler.

C. L. Eksergian, chief engineer of Budd Wheel Co., Detroit, will present a paper entitled "Characteristics and Methods of Tests of Automotive Brake Drums." The second paper will be "Simplicity—the Solution of Extreme Accuracy in Quantity Production," by Gordon M. Evans, vice president in charge of manufacturing, Kelvinator Corp., Detroit.

At 12:30 P. M., buses furnished by the Kelvinator Corp. will take the A.S.M.E. men and others to the Plymouth Road plant where luncheon will be served. Immediately after the luncheon moving pictures will be shown covering many subjects of interest not only of the Detroit plant of the Kelvinator Corp. but also of their Grand Rapids and other plants. Following an inspection trip through the Detroit plant, buses will return the delegates to the Statler Hotel.

LADIES' PROGRAM INCLUDES SEVERAL PLEASANT PARTIES

Variety is Keynote of Program

Variety being the spice of life, the ladies entertainment program during the National Metal Congress, Oct. 2-6, 1933, is full of spice. No effort has been spared to give the visiting ladies the best possible time, as a glance at the following program will show.

The library of Hotel Statler, on the ball room floor, has been reserved as official headquarters for the ladies. Registration will begin there at 9:00 a. m. on Monday, Oct. 2, and will continue throughout the week. All ladies will assemble there before starting on any of the scheduled trips.

On Monday the ladies will leave the Statler promptly at noon and go to Grosse Pointe where luncheon will be served. Afterward they will travel around Detroit seeing the sights, not missing Belle Isle and the famous boulevards.

On Tuesday the ladies will "go industrial" for the time being. Since few of them have seen how automobiles are made, they have been invited by the Chrysler Corp. to visit the plant where Dodge cars are made.

At noon on Tuesday, the ladies will go to Dearborn Inn, the famous New England hostelry which Henry Ford moved to the heart of the middle west. After luncheon there will be a personally conducted tour through the Early American Village and the Historical Museum of the Edison Institute. This will be a trip which every woman will long remember.

A theater party at one of Detroit's beautiful theaters on Thursday afternoon at 2:00 p. m. will conclude the scheduled events of the week.

DETAILS OF CONGRESS

THE REVIEW

Devoted to the interests of the American Society for Steel Treating

A Review of the Activities of the Chapters and National Organization

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19 DETROIT PLANTS WELCOME VISITORS

Nineteen plants in Detroit have arranged special inspection trips to show visitors to National Metal Congress their most interesting departments and processes. Tuesday through Friday mornings, October 3-6, inclusive, have been reserved for these inspection trips.

A choice of four trips is available on each of the mornings, some of the trips covering two plants. Busses will leave Hotel Statler exactly at 9:00 a. m., unless otherwise noted. Tickets should be purchased 24 hours in advance.

TUESDAY, OCT. 3

Bohn Aluminum & Brass Corp. At this interesting non-ferrous plant, the visitors will be taken first to the forging plant after which they will be shown through the extrusion department. Next department to be visited is where the sand castings are made. The valve and plumbing manufacturing department will be the last one on the list.

Chevrolet Motor Co. This trip will cover Chevrolet's Forge plant and Gear & Axle plants. In the former will be seen the manufacture of miscellaneous forging, while in the latter will be seen the processes of making gear and axle assemblies.

Great Lakes Steel Corp.; Michigan Steel Corp. Both these divisions of National Steel Corp. will be visited in one trip. At the Great Lakes Division will be seen the open hearth, blooming, bar and strip mills. The processing of sheet steel from sheet bar will be seen at the Michigan Steel Division.

Hudson Motor Car Co. Synchronized production is the word at the Hudson plant where the output is relatively high for the amount of floor space. Tours of inspection will be made to the heat treating departments, engine manufacturing and final test, gear and axle manufacture, the detached body-building plant, and the final assembly where the various units are assembled into complete Hudson and Terraplane cars. The power plant will be followed right through where the engines are run resting on the test stands without hold down bolts or clamps as convincing proof of inherent smoothness of running.

WEDNESDAY, OCT. 4

Bower Roller Bearing Co.; Barnes-Gibson-Raymond, Inc. Both these plants will be visited on a single trip. First at the Bower plant visitors will see the heat treating department and others incident to the manufacture of roller bearings. Springs are made at Barnes-Gibson-Raymond. Coiling equipment for all kinds of springs and slide machines for making intricate shapes will be shown, as well as the heat treat. In the laboratory are some interesting machines special to the spring industry.

Detroit Edison Co., Delray Plant. Delray Power House 3 contains five boilers, each capable of delivering approximately 370,000 lb. of steam at 400 lb. pressure and 700° F. total temperature per hour. There are three 50,000 kw single-barrel turbo-generators. Of particular interest in the 10,000 kw British Thompson-Houston turbo-generator set, which operates on 375 lb. steam at 1,000 °F. The steam is taken from the superheated steam header and passed through the oil-fired superheater where its temperature is raised from 700° to 1000° F. This unit has been in operation approximately two years.

Chrysler Corp., Dodge Bros. Division. On this trip visitors will be taken to the forging, heat treating and welding departments and along the assembly lines. Another interesting feature of the trip will be a visit to the Chrysler Engineering Laboratories. Some of the group may, if they desire, visit the near-by Plymouth plant where the production and construction methods are entirely different. Visitors will be entertained by the Chrysler Corp. at luncheon and will return to the Statler by 1:30 p. m.

General Motors Research Laboratories. Here will be seen one of the best known research laboratories in the world. Unusual machines and devices will be seen here in operation. The trip will include visits to all sections of the laboratories, among the most interesting of which will be chemical, fuels, engineering tests, dynamics, power plant, lighting, metallurgical, electrical, carburetor and special problems divisions.

WEDNESDAY NOON

Kelvinator Corp. The Kelvinator Corp. has invited A. S. M. E. members and others who would be interested, to a luncheon and inspection trip at their plant. Busses will be furnished and will leave Hotel Statler at 12:30 p. m. Those wishing to make this trip *must* register in advance.

THURSDAY, OCT. 5

Ford Motor Co. First department seen will be motor assembly. Interesting here are a special hardening system for water pump shafts and the heat treating of crank shafts in double-deck electric furnaces with quenching in special whirling machines. Other interesting processes to be seen later include rear axle heat treating, drive-shaft welding, differential hardening of truck rear axle housings, and the fabrication of stainless steel hub-caps on an unusual press. The final assembly lines will also be seen. Busses leave at 8:15 a. m.

Timken-Detroit Axle Co. At the Timken plant visitors will see the upsetters and steam and board hammers in the force shop, the heat treating department and the electrical butt welding apparatus for tubular housings. Chrome plating, pickling and gear manufacturing departments will also be seen.

General Motors Proving Grounds. The scheduled trip to this well-known institution will be one of great interest. The grounds are located at Milford, about 35 miles from Detroit. Busses leave at 8:15 a. m.

Michigan Steel Casting Co. This is a large, modern foundry producing numerous types of steel and alloy castings. Departments to be visited include core making, floor and bench molding, arc-type electric furnace melting, cleaning room and machine shop.

FRIDAY, OCT. 6

Climax Molybdenum Co. Visitors to the Climax Molybdenum Co.'s experimental laboratory will see the equipment and routine by which this company extends free experimental service for the development of the use of molybdenum-alloyed iron and steel. The equipmnt includes induction melting furnaces, grid resistor and globar electric heat treating furnaces; laboratory machine shop; fatigue, hardness and tensile testing machines; photomicrographic, dilatometric and chemical analytic set-ups. The furnaces or machines will be operated at the pleasure of the guests.

Detroit Steel Corp. This plant is one of the large producers of fine cold rolled strip. Operations which will be shown embrace pickling, cold rolling, annealing and such secondary operations as slitting, cutting to length and flattening. Work in process will be strip in widths from ⅜" to 22" and in gages from .005" to ½" thick.

Detroit Seamless Steel Tubes Co. The line of product at this plant is quite diversified, consisting of such automobile parts as tie rods, drag links, cross members, axles, steering posts and oil tubes. Mechanical tubing is produced in sizes ranging from ¼" through 5½" OD.

Whitman & Barnes, Inc. In this modern, up-to-date plant will be seen the manufacture of twist drills, reamers and cutters. A well equipped heat treating department will be interesting to many.

Exhibitors, Their Displays and Representatives

Air Reduction Sales Co., New York. Booth 101.
Exhibiting (in operation): a Style No. 6 Oxygraph suitable in fabricating machine parts, bases, etc.; a Style No. 7 Oxygraph designed for shape cutting to precise forms and dimensions; a new Camograph, a semi-automatic machine in which the torch is driven by a magnetic roller contacting with the periphery of a cam or templet of the form required to produce the desired shape. The addition of one attachment converts it into a shape cutting machine that may be operated without the use of the magnetic tracing device.
The No. 4 Radiograph with new attachments will be demonstrated. The pipe cutting and beveling machine for cutting off and beveling pipe ranging from 4" to 36" in diameter in one operation will be demonstrated. Also on demonstration will be the Airco-Davis-Bournonville hand welding and cutting apparatus including multi-stage regulators. National Carbide lights and lanterns will be demonstrated. Airco oxygen and acetylene cylinders as well as the complete line of Airco welding and cutting supplies will be on display.
A Model S-A Arc Welder manufactured by the Wilson Welder and Metals Co., will be demonstrated. This demonstration will feature particularly Airco B and O shielded arc electrodes.
In attendance: C. D'W. Gibson, assistant vice president and general sales mgr.; W. H. Ludington, manager of applied engineering department; J. F. Pryor, assistant to general sales manager; E. F. Pettigrew, manager of gas sales; H. W. Reade, apparatus sales manager; G. Van Alstyne, advertising manager; H. L. Rogers, assistant manager, applied engineering department; F. E. Rogers, applied engineering department; R. F. Helmkamp, engineer; W. P. Jones of Wilson Welder & Metals Co.; W. M. Hayes, manager Detroit; G. J. Dekker, assistant sales manager, Detroit; H. J. Hart, B. C. Rogers, J. B. Davenport, sales representatives, Detroit; D. Noonan, salesman, Detroit; G. E. Phelps, supervisor, Detroit; C. D. Welcomb, serviceman, Detroit.

Ajax Electric Co., Inc., Philadelphia. Booth 150.
Exhibiting (in operation): An electric furnace for bright annealing and brazing ferrous and non-ferrous parts. The special hydrogen atmosphere for this furnace will be supplied by an Ajax electric ammonia dissociator. The newly patented Ajax helical heating element, suitable for operating temperatures up to 2000°F. in an oxidizing atmosphere, will be shown installed in a typical heat treating furnace. The suspended flat roof construction carrying the heating elements, is a special feature of this furnace. A display of photographs illustrates the construction and operating principle of Ajax electric heat treating furnaces.
In attendance: G. H. Clamer, president, William Adam, Jr., vice president; John E. Haig, secretary; James Kniveton.

Ajax Electrothermic Corp., Trenton, N. J. Booth 150.
In attendance: Dr. G. H. Clamer, president and general manager; Robert N. Blakeslee, secretary and sales manager; A. D. Meyer, sales metallurgist.

Allegheny Steel Co., Brackenridge, Pa. Booth 171.

Allen Steel Co., Inc., Edgar, New York. Booth 104
Exhibiting: High speed steel, hot work die steel, special tool steels and alloy steels.
In attendance: H. S. Hoyt, president; J. King Hoyt, Jr., secretary-treasurer; V. A. Greene, vice president; H. R. Adams, Chicago branch manager; E. R. Carnell, sales representative.

American Brass Co., Waterbury, Conn. Booth 38
Exhibiting (in operation): Demonstration of carbon and metal arc welding of Everdur metal and oxy-acetylene welding using genuine Tobin bronze welding rods will be conducted by C. E. Swift, welding engineer. Our display will also include various parts and samples of Beryllium copper, cast iron parts repair-welded with Tobin bronze filler rod, Everdur tanks automatically welded, and tests on Everdur.

American Car And Foundry Co., New York. Booth 52
Exhibiting (in operation): One No. 2 two-electrode rivet heater, for heating rivets from ⅜" to ¾" diam. from 1" under the head to 6" in length. Standard heater of which there are over 3000 in use. One No. 3 two electrode full automatic forging heater, equipped with electric eyes to prevent over or under heating, temperature held within 10 degrees plus or minus. For heating stock from ¼" to ¾" diameter, and lengths from 6" to 14". Nine sizes of heaters built to cover larger size stock or of larger hourly production. One semi-automatic horizontal end heater, for valve stems, screw driver ends, nail and number sets, etc.
In attendance: H. C. Cheston; J. S. Helt; F. C. Cheston.

American Cyanamid & Chemical Corp., New York. Booth 65.
Exhibiting: Latest news on developments in the heat treating industry with the use of Aerocase.
In attendance: L. E. Swenson, assistant sales manager; G. D. Johnston, metallurgist; P. E. Holder, metallurgist; G. B. Horsfull and E. H. Driver, sales representatives.

American Gas Association, New York. Booth Gas Section.

American Gas Association Laboratories, Cleveland, Booth Gas Section.

American Gas Furnace Co., Elizabeth, N. J. Booth Gas Section.
Exhibiting (in operation): Bell type retort furnace for various heat treatments, including gas carburizing, nitriding, combination treatments such as Machlet Ni-Carb case treatment, also bright annealing, hardening, tempering, etc. New continuous heating machine for continuously heat treating in a gaseous atmosphere including Machlet Ni-Carb case treatment, carburizing, bright annealing, etc. Various styles of special burners. Automatic temperature control. Photographs of machines and installations.
In attendance: P. C. Osterman, Elmer C. Cook, John Mehrman, Theodore Farwick, and George A. F. Machlet.

American Metal Market, New York. Booth 77.
Exhibiting: The pioneer daily newspaper of the iron, steel and metal working industries. Established in 1882 as a weekly, published daily since 1899. Publishing daily market reports, prices, and news developments affecting the iron, steel and metal fields.

In attendance: S. P. Trench, vice president; R. A. Langer, advertising manager; S. Glassford, circulation manager.

American Sheet & Tin Plate Co. Booth 126.
See-United States Steel Corp.

American Steel & Wire Co., Chicago. Booth 128.
Exhibiting (in operation): Welding wires, manufacturing wires, cold rolled strip steel, springs and cold finished steel bars of carbon, alloy and stainless steels. A demonstration of welding will be carried on using Premier tested welding wire and USS stainless coated welding wire. These wires have clearly proved their superiority under the most severe conditions. Constantly uniform in structure, always free flowing and deeply penetrating, they provide welds of maximum strength.
(See U. S. Steel Corp.)

Aurora Metal Co., Aurora, Ill. Booth 10
Exhibiting: "Stronger than Steel" die cast aluminum bronze parts for printing presses, locomotive blow-off valves, outboard motors, washing machines and ironing machines, power lawn mowers, counting machines, variable speed mechanisms, dish washing machines, electric switches, hose couplings, catenary hardware, spray guns, telephone equipment, electric hand saws and sanders, gasoline meters, milk bottle capping machines, machine guns, dump trucks, etc. Die cast aluminum bronze gear and worm blanks, die cast silicon bronze enclosed type centrifugal pump impellers.
In attendance: John LeMay, vice president and chief engineer; R. D. Holmsten, assistant engineer; Don Rennolds, Chicago representative; N. C. Failor, New York representative; E. W. Saunders, Cleveland representative; Geo. M. Hessdoerfer, Philadelphia representative; Clark P. Schumacher, St. Louis representative; Frank J. Stolle, Cincinnati representative.

Babcock & Wilcox Co., New York. Booth 165.
Exhibiting (in operation): A startling demonstration of the remarkable properties of B & W insulating firebrick. Two gas furnaces will be operating, one built of B & W insulating firebrick and the other of usual construction. Recording potientiometers and fuel meters will show the substantial savings in heating-up time and in fuel that are secured through use of B & W firebrick. Reports giving the amount of these savings in actual installations will be available. There will also be a complete display of all B & W refractories, including the new B & W junior firebrick.
In attendance: J. E. Brinckerhoff, sales manager; H. J. Shaner, R. M. Onan and W. A. Stuart, salesmen.

Baldwin Southwark Corp., Philadelphia. Booth 34.
Exhibiting (in operation): A 60,000 lb. universal testing machine; Baldwin Southwark stress strain recorder; Carpenter torsion impact machine.
In attendance : F. G. Tatnall, manager testing machine division; G. S. Von Hydekampf, consultant machine division; A. K. Nowak, district representative.

Barnes Co., Inc., W. O., Detroit. Booth 62
Exhibiting (in operation): A Marvel full automatic high speed hack saw machine with 4-speed transmission, cutting bar steel continuously. This machine is fully automatic and releases the bar, sets it forward, and starts the new cut without the aid of any human agency. We will use a Barnes Red Arrow high speed hack saw on this machine. We will also operate a small high speed band saw machine, cutting both sheet metal and wood. This is a portable machine of exceptional quality and balance and should be interesting to sheet metal workers, airplane manufacturers and foundries.
In attendance: W. O. Barnes, president; J. H. Flavell, secretary-treasurer; C. B. Cecil, sales manager; F. M. Shaw, Atlantic Coast representative; Evan Evans, Pacific Coast representative; A. G. Young, Cleveland district representative; J. W. Bennett, Pittsburgh district representative.

Barnes-Gibson-Raymond, Inc., Detroit. Booth 129.

Bastian-Blessing Co., Chicago. Booth 160.

Bausch & Lomb Optical Co., Rochester. Booth 58.
Exhibiting (in operation): Metallurgical microscopes, principally such equipment as the GBILSAA, routine metallographic equipment, FSM and DHM; spectrographic equipment such as the Littrow spectrograph, measuring microscope, density comparator. Industrial microscopes such as AKW wide field microscopes, Brinell microscope, wide field tubes and the shop microscope.
In attendance: I. L. Nixon, instrument sales division manager; E. G. Koch, M. H. Stevens and C. C. Nitchie, sales representatives.

Bethlehem Steel Co., Bethlehem, Pa. Booths 46 & 97.
Exhibiting: Several new shapes of Bethlehem wide-flange structural shapes, several new light joists and stanchions, a display of Bethlehem (Lackawanna) steel sheet piling sections. The bolt and nut display consists of Toughtemp steel, Mayari A steel, Supertemp steel, heat treated bolts, hot forged nuts and set screws. Kalman Steel Corp. will show a section of a door frame, Kalmantruss and Mac-Mar truss joists. Exhibit also includes parts illustrating the various grades of Bethadur, and parts made of Bethalon free machining corrosion resisting steel. Fourteen kinds of Bethlehem sheets will be shown, and various kinds of wire, particularly the new zinc coated Bethanized wire. Several specimens of Mayari high-test iron will be on exhibit. A display of alloy steel will include round bars showing hot rolled finish, square billets, centerless ground bar, cold drawn bar, rough turned bar, rough turned and polished bar.
In attendance: W. B. Topping, general manager of western sales, Detroit; R. S. Tucker, manager of alloy sales, Bethlehem; D. C. Roscoe, manager of tool steel and small tool sales, Bethlehem; J. S. Hegeman, manager of sales, Detroit; R. E. Dexter, W. E. Small, Jr., W. P. Newport, H. R. Weeman, M. A. Ryan, T. D. Hann, Jr., G. H. Smith, H. J. Kelly, G. M. Beard, W. D. Pittman, N. Mette and M. N. Dustin, Detroit salesmen; A. A. Warg, exhibit man, Bethlehem; W. J. Curry, metallurgical engineer; A. F. McDonald, assistant research engineer; E. A. Buxton, development engineer; I. S. Reiter and T. C. Kern, metallurgical department; R. E. Penrod, engineer of tests.

Blakeslee & Co., G. S., Cicero, Ill. Booth 82
Exhibiting (in operation): The Blakeslee degreasing machine used to take off grease, dirt, oil, chips, etc., from stamped and machined parts, prior to plating, enameling, galvanizing, etc. This type of degreasing removes grease 100% without any streaks, stains, runs, etc., and without any necessary subsequent operations, such as, blowing and wiping. We use a chlorinated hydro-carbon which is non-inflammable and non-explosive. Parts are degreased in much smaller space and in few seconds time. By a continual distilling process, the oils, dirt, etc., washed off the work are constantly removed from the system .....
In attendance: J. W. Dammers, treasurer; A. S. Reichel and I. F. Snow, sales engineers.

(Continued on Page Three)

What Exhibitors Will Show

Brown Instrument Co., Philadelphia. Booth 56.
Exhibiting (in operation): Automatic control of hardening, tempering, annealing and drawing temperatures. Both potentiometer and millivoltmeter types of Brown pyrometer controllers will be shown. An interesting demonstration of the Trendalizer control system will show how the free, flexible control of a skilled human operator can be duplicated in accordance with both temperature trend and extent of deviation. Visitors may test their skill at manual control and then compare their results with the Trendalizer's "straight line" control. In addition the new Brown mercury-switch thermometer controller and the new Brown recording thermometer and pressure gage will be shown, together with electric CO_2 meters and indicating and recording flow meters.
In attendance: R. P. Brown, president; G. W. Keller, vice president and general sales manager; C. H. Kerr, vice president and general manager; R. D. Bean, chief engineer; R. W. Mayer, in charge of Detroit office; other engineer-representatives from the Detroit and Philadelphia offices.

Bundy Tubing Co., Detroit. Booth 78.
Exhibiting: Various sizes and kinds of sweated and electric hydrogen welded steel tubing, and samples to illustrate copper electric hydrogen welding such as receiver tanks, floats, spring shackles, etc.
In attendance: T. M. Rude, assistant general manager; G. D. Baker, sales department; B. L. Quarnstrom, engineer; D. R. Knox, engineering department; Louis Von Stein, engineering department.

Campbell, Andrew C., Division of American Chain Co., Inc., Bridgeport, Conn. Booth 110.
Exhibiting (in operation): Nibbling machine for cutting metals; Hudorkut submerged cutting machine which cuts at very high speed any metal, porcelain, glass or compositions.
In attendance: W. Gutterson, sales manager; H. G. Robinson, chief engineer; E. E. Whitney and D. T. Fraser, sales engineers. ....

Carboloy Co., Inc., Detroit. Booth 3.

Carborundum Co., Niagara Falls, N. Y. Booths 152 & 154.

Carnegie Steel Co., Pittsburgh. Booth 151
Exhibiting: Samples of various grades of carbon steels illustrating the effect of inherent grain size on hardenability and other physical properties; also the influence of grain size on forging and heat treating characteristics. Exhibit will include a number of test specimens as well as fabricated parts, such as automobile forgings, tools, etc.
Also see United States Steel Corp.
In attendance: E. T. Barron, assistant metallurgical engineer; T. S. Woodward, chief chemist and metallurgist, Ohio works; C. B. Francis, director, bureau of technical instruction; P. Schane, Jr., chief metallurgist, Duquesne works; Arnold Shesholtz, metallurgical department, Duquesne works; J. T. McLeod, superintendent, open hearth department, Duquesne works; C. G. Purnell, F. T. Brambaugh and R. W. Simon, bureau of investigation, metallurgical department; G. W. Landrus, J. Hornbrook, H. R. Merritt, M. C. Miller and J. D. Macpherson, salesmen, Detroit office.

Chemical Catalog Co., New York. Booth 60.
See "Metals & Alloys".

Climax Molybdenum Co., New York. Booth 49
Exhibiting: Our exhibit will include a piece of ore of approximately 100 lbs. from which any one of the following molybdenum products can be obtained: .67 lbs. of ferro molybdenum; .95 lbs. of calcium molybdate; .75 lbs. of molybdenum sulphide concentrates; .4 lbs. of molybdenum metal; .6 lbs. of molybdenum oxide. Brief moving pictures of the mine in Climax, Colorado, and the experimental laboratory in Detroit, Michigan.
In attendance: From New York, J. B. Thorpe, vice president; C. M. Loeb, Jr., metallurgical engineer. From Detroit, W. P. Woodside, vice president in charge of research; A. J. Herzig, chief metallurgist; E. R. Young, metallurgical engineer; T. D. Parker, assistant metallurgist. From Pittsburgh, Geo. O. Loeffler, metallurgical engineer. From Massillon, Paul M. Snyder, metallurgical engineer.

Cling-Surface Co., Buffalo, N. Y. Booth 15
Exhibiting (in operation): A display showing the effect of Cling-Surface belt preservative applied to belting, and also its new product—Permac, the gasket in powder form. The Cling-Surface exhibit will consist of motors driving various types of loaded machines by means of belts, part of which have been treated with Cling-Surface belt preservative. The portion devoted to Permac will feature the use and application of Permac to flange union joints.
In attendance: Gordon N. Parker, vice president; George R. Flinn.

Cooley Electric Furnace Co., Long Island City, N. Y. Booth 20.
Exhibiting (in operation): Complete line of laboratory furnaces representing a new development, characterized particularly by the use of Doreco heating elements developed by Doherty Research Co. The Doreco element is impervious to the action of chemical fumes and vapors. The line of furnaces shown includes muffle, combustion tube, crucible furnaces and hot plates, the Doreco elements being adapted to all types. Also shown will be Semhet, a new refractory having high thermal conductivity, in several forms. A new type of industrial rheostat will also be shown.
In attendance: W. B. Cooley, president and general manager.

Darwin & Milner, Inc., Cleveland. Booth 20-A.

Dearborn Chemical Co., Chicago. Booth 170
Exhibiting: Water treatment; No-Ox-Id rust preventive; Cleaners for industrial use.
In attendance: E. M. Converse, vice president; C. I. Loudenback and T. Kennedy.

de Forest Associates, A. V., New York and Pittsburgh. Booth 29-A.
Exhibiting: A non-destructive test and inspection method for determining cracks and other defects in steel and steel parts such as related to aircraft, bus parts, street railway and steam railroad equipment.
In attendance: Alfred V. de Forest, senior partner; Charles A. McCune, manager.

Detroit Alloy Steel Co., Detroit. Booth 14.
Exhibiting: Alloy tool steel castings and patterns.
In attendance: Hugh Martin, president; H. F. Kluender, sales manager; Ted Hill, Detroit sales; W. C. Eakin, Central District sales; T. Andersen, Eastern District sales.

Detroit Edison Co., Detroit. Booths 132 & 155.
Exhibiting: Products treated in electric furnaces.
In attendance: Glenn Coley, metallurgist, in charge. Representatives of the following builders of electric furnaces will have representatives in this booth: American Car and Foundry Co., Electric Furnace Co., General Electric Co., George J. Hagan Co., C. I. Hayes, Inc., Hevi Duty Electric Co., Holcroft & Co., Hoskins Manufacturing Co., Leeds & Northrup Co., W. S. Rockwell Co., Westinghouse Electric & Manufacturing Co.

Dow Chemical Co., Midland, Mich. Booth 68.
Exhibiting: Ultra-light Dowmetal articles, including sand and die castings, extruded sections, forgings, plate and sheet, as well as specimens of riveted and acetylene and electric spot and seam welded parts. Also a separate exhibit showing the extreme effectiveness of Dow organic solvents as metal degreasing agents. Various metal parts will be cleaned in a standard metal degreasing machine as though in preparation for plating, lacquering, or enameling operations.
In attendance: L. B. Grant, manager, Dowmetal sales division; R. L. Heindel, special products division.

Driver-Harris Co., Harrison, N. J. Booth 59
Exhibiting: Nichrome, Chromax and other heat-resisting alloys in the form of carburizing boxes, cyaniding and pickling containers, nitriding containers, lead hardening pots, retorts, furnace parts, etc. Also electric furnace strip made of Nichrome for heating elements of electric furnaces, and many other interesting products.
In attendance: F. V. Lindsey, vice president and sales manager; W. E. Blythe, Detroit district sales manager, K. H. Hobbie, Chicago district sales manager; A. J. E. Eckley, Detroit sales engineer; G. A. Lennox, assistant sales manager; L. V. Prior, Cleveland sales engineer; J. B. Shelby, sales engineer; J. Sammon, foundry engineer.

du Pont de Nemours & Co., Inc., R. & H. Chemicals Department, Wilmington, Del. Booth 7.
Exhibiting: Our technicians will devote their time to inter-
(Continued on Page Four)

30 Papers Listed by A.S.S.T. on 1933 Convention Program

Monday, Oct. 2
10:00 a. m.—Hotel Statler, Ball Room
Technical Session

THERMAL CONDUCTIVITY OF IRONS AND STEELS AND SOME OTHER METALS IN THE TEMPERATURE RANGE OF 0 TO 600 DEGREES CENT., by S. M. Shelton and W. H. Swanger, U. S. Bureau of Standards, Washington, D. C.

THE COMPOSITION AND CRITICAL TEMPERATURE OF PEARLITE CONTAINING ONE PER CENT SILICON, by A. E. Schowalter, W. W. DeLamatter and H. A. Schwartz, National Malleable and Steel Castings Co., Cleveland.

ALLOYS OF IRON AND MANGANESE, 4 Parts, by Francis M. Walters, Jr., Cyril Wells and M. Gensamer, Carnegie Institute of Technology, Pittsburgh, and John Eckel, Gulf Refining Co., Coraopolis, Pa.

2:00 p. m.—Hotel Statler, Ball Room
Technical Session

THE LINEAR THERMAL EXPANSION AND ALPHA-GAMMA TRANSFORMATION TEMPERATURE (A_3 POINT) OF PURE IRON, by J. B. Austin and R. H. H. Pierce, Jr., U. S. Steel Corporation, Kearny, N. J.

A STUDY OF THE EFFECT OF WATER VAPOR ON THE SURFACE DECARBURIZATION OF STEEL BY HYDROGEN WITH CERTAIN DEVELOPMENTS IN GAS PURIFICATION, by C. R. Austin, Westinghouse Electric and Mfg. Co., East Pittsburgh.

THE ACTION OF OXYGEN AND HYDROGEN SULPHIDE UPON IRON-CHROMIUM ALLOYS AT HIGH TEMPERATURES, by R. L. Rickett and W. P. Wood, University of Michigan, Ann Arbor, Mich.

Tuesday, Oct. 3
10:00 a. m.—Hotel Statler, Ball Room
Technical Session

SOME PROBLEMS OF QUENCHING STEEL CYLINDERS, by Howard Scott, Westinghouse Electric and Mfg. Co., East Pittsburgh.

MARTENSITIC GRAINS IN AIR-COOLED LOW CARBON STEEL AND THEIR EFFECT ON MACHINABILITY, by O. W. McMullan, Timken-Detroit Axle Co., Detroit.

THE LIFE OF TURNING TOOLS AS INFLUENCED BY SHAPE, by O. W. Boston and W. W. Gilbert, University of Michigan, Ann Arbor, Mich.

2:00 p. m.—Hotel Statler, Ball Room
Technical Session

INVESTIGATION OF THE TREATMENT OF STEEL FOR PERMANENT MAGNETS, Part II, by R. L. Dowdell, University of Minnesota, Minneapolis.

BRIGHT ANNEALING OF STEEL IN MIXED GAS ATMOSPHERES, by A. L. Marshall, General Electric Company, Schenectady, N. Y.

THE HEAT TREATMENT OF CAST IRON, by Carl H. Morken, Detroit Electric Furnace Co., Detroit.

THE STRUCTURE AND CONSTITUTION OF AN ALLOY STEEL, by O. W. Ellis, Ontario Research Foundation, Toronto, Ont., Canada.

Wednesday, Oct. 4
10:00 a. m.—Hotel Statler, Ball Room
Annual Meeting of the A.S.S.T.

1933 Campbell Memorial Lecture, presented by H. J. French, International Nickel Company, New York City, entitled FATIGUE AND HARDENING OF STEELS.

2:00 p. m.—Hotel Statler, Ball Room
Technical Session

ON THE DESIGN AND CONSTRUCTION OF A PRECISION HIGH POWER METALLOGRAPHIC APPARATUS, by F. F. Lucas, Bell Telephone Laboratories, New York City.

SENSITIVITY OF THE GAMMA RAY METHOD OF RADIOGRAPHY, by J. T. Norton and Alfred Ziegler, Massachusetts Institute of Technology, Cambridge, Mass.

THE MECHANISM OF CRYSTAL GROWTH, by Wheeler P. Davey, Pennsylvania State College, State College, Pa.

Thursday, Oct. 5
10:00 a. m.—Hotel Statler, Ball Room
Technical Session

COMPARISON OF SINGLE-STEP LONG-TIME CREEP RESULTS WITH HATFIELD'S TIME-YIELD STRESS, by A. E. White and C. L. Clark, University of Michigan, Ann Arbor, Mich.

LOW TEMPERATURE IMPACT STRENGTH OF SOME NORMALIZED LOW ALLOY STEELS, by J. J. Egan, Walter Crafts and A. B. Kinzel, Union Carbide and Carbon Research Laboratories, Long Island City, N. J.

THE TORSION IMPACT PROPERTIES OF HARDENED CARBON TOOL STEEL, by G. V. Luerssen and O. V. Greene, Carpenter Steel Co., Reading, Pa.

2:00 p. m.—Hotel Statler, Ball Room
Technical Session

EFFECT OF COLD WORKING ON THE PHYSICAL PROPERTIES OF COLD-HEADED BOLTS, by Carl L. Harvey, Lamson and Sessions Co., Kent, Ohio.

BASIC OPEN-HEARTH CARBON STEEL FOR COLD HEADING—"INGOT TO WIRE," by A. B. Arganbright, Wheeling Steel Corporation, Portsmouth, Ohio.

A STUDY OF BANDING IN CHROMIUM MOLYBDENUM STEEL, by E. R. Johnson and W. J. Buechling, Republic Steel Corporation, Massillon, Ohio.

Friday, Oct. 6
10:00 a. m.—Hotel Statler, Ball Room
Technical Session

PRESENT STATUS OF AGE-HARDENING, by Richards H. Harrington, General Electric Co., Schenectady, N. Y.

NOTES ON THE AGING OF METALS AND ALLOYS, by Albert Sauveur, Harvard University, Cambridge, Mass.

ON GRAIN SIZE AND GRAIN GROWTH, by M. A. Grossmann, Illinois Steel Co., South Chicago.

2:00 p. m.—Hotel Statler, Ball Room
Technical Session

ON THE MANUFACTURE OF RIMMING STEEL, by William R. Fleming, Andrews Steel Company, Newport, Ky.

SOLIDIFICATION OF STEEL IN INGOT MOLDS, by L. H. Nelson, Republic Steel Corporation, Buffalo, N. Y.

SOME FACTORS AFFECTING THE PHYSICAL PROPERTIES AND CORROSION RESISTANCE OF 18-8 CHROMIUM-NICKEL STEEL WIRE, by W. H. Wills and J. K. Findley, Ludlum Steel Co., Dunkirk, N. Y.

APPLICATION OF THERMODYNAMICS TO THE DEOXIDATION OF LIQUID STEEL, by John Chipman, University of Michigan, Ann Arbor, Mich.

GOLDEN GATE'S ANNUAL COURSE IN METALLURGY NOW STARTED

Lecture and Two Laboratory Classes

The annual course in practical metallurgy, sponsored by the Golden Gate chapter of A.S.S.T., is well under way at Humboldt Evening High School in San Francisco.

A lecture course began August 17 with a large registration. Howard S. Taylor, instructor in metallurgy, Stanford University, is presenting the lectures.

Two laboratory courses with Mr. Taylor and George A. Nelson, of the Shaw laboratories, as instructors, began the same week.

Golden Gate's policy in these courses requires attendance first at the lecture series, following which the men may take beginners and advanced laboratory courses in succession.

NEW RUSSIAN METALLURGY TEXT

Professor Nikolay Minkevitch of the Institute of Steel in Moscow has written a two-volume work, "Properties and Heat Treating of Steel and Iron." These books are written in Russian language and contain information on the present status of metallurgy in the U. S. S. R.

What Exhibitors Will Show

views. We invite all members of the Society interested in steel treating and case hardening to consult our representatives.

In attendance: Dr. D. A. Holt, cyanide consultant; Wm. Gager, metallurgist; A. C. Stepan, manager, Chicago district office.

Eberbach & Son Co., Ann Arbor, Mich. Booth 17.
Exhibiting (in operation): Metallographic polishing machines.
In attendance: David Sigal, travelling representative.

Eisler Electric Corp., Newark, N. J. Booth 79.
Exhibiting (in operation): Speed Spot Welders. A demonstration will be given of the method of joining two metals with the use of a new timing device. A complete line of gas and air burners and torches will also be on display.
In attendance: Michael A. Fox, advertising and sales promotion manager.

Electric Furnace Co., Salem, O. Booth 72
Exhibiting: Photographs and enlargements of various types of electric and fuel fired furnaces and material handling equipment for various processes and applications. Also photographs of new developments and recent installations of furnaces for continuous bright annealing, brazing, nitriding, etc., and samples of products processed in this equipment.
In attendance: R. F. Benzinger, vice president; F. T. Cope, chief engineer; A. H. Vaughan, assistant chief engineer; M. H. Mawhinney, fuel engineer; T. B. Bechtel, sales engineer; C. L. West, sales engineer; F. J. Peterson, Detroit district representative; B. C. Thompson, Detroit district representative; B. G. Harmon, Chicago district representative; S. F. Keener, sales manager; A. E. Wright, advertising manager.

Electro-Alloys Co., Elyria, O. Booths 42 & 63
Exhibiting: Thermalloy furnace castings and retorts.
In attendance: J. B. Thomas, treasurer; J. W. Henry, superintendent; H. I. Dixon, R. B. McMullen, Jr., W. J. Hanson and C. W. Seibold, sales engineers; W. C. Whyte, vice president.

Electro Metallurgical Co., New York. Booth 120.
Exhibiting: Numerous samples of Electromet ferro-alloys and metals.
In attendance: W. J. Priestley, R. C. Goode, E. K. Smith, S. M. Norwood and R. Tull.

Electrolux Refrigerator Sales, Inc., Evansville, Ind.
Booth Gas Section.
Exhibiting (in operation): Gas refrigeration units together with displays showing mechanical construction and finish.
In attendance: L. E. Williams, special representative in charge; F. E. Sellman, vice president, New York; George L. Roach, sales manager, Evansville.

Ensign-Reynolds, Inc., New York. Booth Gas Section.
Exhibiting (in operation): Dual heated immersion type soft metal furnace; rotary type air cooled gas compressor; ribbon burners; screen burners; flame distributing burners; air cleaning inspirators; high pressure gas inspirators; soldering furnaces; staylite burners; centrifugal air blowers; centrifugal gas boosters; at mospheric burners; atmospheric inspirators.
In attendance: F. J. Fieser, assistant to vice president, and N. E. Bertl.

(Continued on Page Five)

A. W. MACE WITH LUDLUM STEEL CO.

A. W. Mace, formerly assistant to Vice President E. P. Thomas of United States Steel Corp., has been appointed assistant to the president of Ludlum Steel Co., to supervise the administration of the Iron and Steel Industry Code in the Ludlum organization.

OFFER DATA ON B. & W. FIREBRICK

Actual service reports, showing how unprecedented savings have been consistently secured in oil and gas fired furnaces of many types through the use of B&W insulating firebrick, made by Babcock & Wilcox Co., New York, are now accessible to those interested in reducing industrial furnace operating costs. B&W insulating firebrick embody every advantage of an efficient insulator, and due to their high-fusion point, freedom from shrinkage at high temperatures, are used as the furnace structure directly exposed to heat.

ASK FOR THESE FREE PAMPHLETS

For the Laboratory

The new catalog of Burrell Technical Supply Co. describes a full line of high temperature (2550° F.) electric laboratory furnaces, tube and muffle types, for experimental heat treating. All are of modern design, moderately priced and easily operated. Bulletin Jn-100.

X-Rayed Alloy Castings

A folder just issued by Electro Alloys Co. describes their X-Ray inspection service of Thermalloy heat resisting castings for high temperature work. Considerable data on the use of X-Ray tubes and "radon" capsules to check foundry practice are presented. Typical radiographs and tables of physical properties are included. Bulletin Oc-32.

New Heat Controller

"Straight Line Control" of furnace temperature is possible with the Trendalizer Controller made by Brown Instrument Co. There is no zig-zagging across the control point, because this unique device changes its control action in accordance with both temperature trend and extent of deviation. Bulletin Sp-3.

Quicker Heat Treating

Driver-Harris Co. discusses Nichrome sheet containers for heat treating in an illustrated folder which honestly states that while for certain purposes sheet containers cannot be used economically, there are a multitude of installations where their advantages of lightness and quicker heating can be fully utilized. Bulletin Jl-19.

New Type Furnace

A new bell-type retort furnace made by American Gas Furnace Co. can be used in quick succession for carburizing, nitriding, bright annealing in gas atmospheres, or for hardening, normalizing, tempering or annealing. It is an ideal heat treating tool where production is widely varied in character. Bulletin Jn-11.

Belt Conveyor Furnaces

Full descriptions and photographs of furnaces for economically heat treating small and medium sized parts are given in an 8-page bulletin covering continuous chain belt conveyor furnaces made by Electric Furnace Co. Over 50 such furnaces are now in operation. Bulletin Sp-30.

Roll Grinding

Carborundum Co. has just published a 50-page booklet on roll grinding which may be considered a handbook of available information on this subject. Carefully written and amply illustrated, this treatise will undoubtedly be of real practical value. Bulletin Au-57.

Micro-Metallograph

Metallurgists will be interested in the description of the Leitz Model MM-2 Micro-Metallograph. This simplified instrument at low cost provides all essential optical and mechanical equipment to meet the requirements of industry. Bulletin Fe-47.

Choosing Nickel Steel

International Nickel Co. has an ingenious chart to show at a glance the nickel alloy steel compositions and treatments needed to develop yield points in section sizes from 1 to 12 in. It is useful in selecting bars, shafting and forgings of simple shape. Bulletin Au-45.

Quenching Handbook

E. F. Houghton & Co. have published an excellent 80-page handbook on the subject of quenching. More than 30 charts and photomicrographs help tell the story. A copy will be sent free to those who request it. Bulletin Jl-38.

Uses of Molybdenum

Climax Molybdenum Co. offers a new and useful 50-page booklet dealing with the benefits conferred by molybdenum as an alloying element in iron and steel. In orderly fashion engineering data are presented and made clear with numerous tables and illustrations. Bulletin Au-4.

Nitriding Facts

Information on possible new applications of Nitralloy and the nitriding process in view of recent developments may be obtained from Ludlum Steel Co. New economies in production and a better product may now be obtained. Bulletin Jn-94.

Welding Stainless

An unusual amount of practical data is contained in a fine booklet just put out by Republic Steel Corp. which gives recommendations for welding the several Enduro stainless alloys. Generously illustrated. Bulletin Jn-8.

American Society for Steel Treating,
7016 Euclid Ave., Cleveland.

Please have sent to me without charge the following literature as described in the September issue. (Please order by number only.)

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Name .....

Position .....

Firm .....

Address .....

Hardness Testing

Everyone interested in the testing of metals for hardness will do well to have on hand a copy of a catalog recently issued by Wilson Mechanical Instrument Co., illustrating and describing the latest design of Rockwell Hardness Testers and auxiliary work supports. Bulletin Sp-22.

2 Everdur Booklets

Two recent publications of American Brass Co. discuss Everdur, the high strength, corrosion resisting copper alloy. One covers its physical properties and resistance to corrosion, the other tells how to weld it. Either or both will be sent. Bulletins Jl-89a and Jl-89b.

Continuous Carburizing

Furnaces for continuous gas carburizing by the Eutectrol process are described in a new folder by Surface Combustion Corp. Photographs of installations and performance data are used to show the advantages of the process. Bulletin Oc-51.

Electric Pot Furnace

American Electric Furnace Co. has just published a new 4-page folder showing the construction features and giving the operating advantages of their "American" electric pot furnace as used for lead, salt and cyanide baths. Bulletin Oc-2.

Cleaning Steel

William M. Parkin Co. describes NEPowder, a successful inhibitor for use in cleaning steel, which has proved unusually effective and economical. The folder explains its inhibitive action and offers valuable suggestions for obtaining best cleaning results. Bulletin Jl-99.

Titanium Cast Iron

The effects of titanium on the structure and properties of gray cast iron, especially as contrasted with those of other commonly used alloys, are described in a pamphlet offered by Titanium Alloy Mfg. Co. The results given were obtained by regular operating practice in several foundries and not solely by laboratory experiments. Bulletin Jl-90.

Globar Elements

Globar electrical heating units and a variety of accessories for their operation have been catalogued by Globar Corp. A list of the standard industrial type heating elements and a coordinated list of terminal mountings and accessories is included. Bulletin N-25.

Cast Vanadium Steel

Jerome Strauss and George L. Norris have written a technical booklet for Vanadium Corp. of America describing the properties developed by steel castings containing various percentages of vanadium. The information given is complete and authoritative. Bulletin S-27.

Art of Metallography

Bausch & Lomb Optical Co. offers a 130-page book, "Optical Instruments for Examining Metals," which is a beautifully executed source of information on this subject. The book is at once a convenient reference text on optics, a treatise on photomicrography and a catalog of B. & L. products. Bulletin Jn-35.

Stainless Sheets

A very useful booklet describing the stainless steel sheets and light plates made by American Sheet & Tin Plate Co. gives recommendations for fabrication and a description of finishes and analyses available. Bulletin Ap-96.

Sheffield Steel

Wm. Jessop & Sons, Inc., in a recent publication explain why their Sheffield Superior oil hardening steel does not distort and is easily machined. They assign as reasons a special anneal and a proper balancing of the carbon, manganese and tungsten contents. Full details are presented in Bulletin Jn-61.

New Zinc Coating

Wire which has been zinc coated by the new Bethanizing process is described in Bethlehem Steel Co.'s latest folder. This process produces a zinc coating which has proved to be more ductile, tighter, tougher, more uniform and purer. Coatings 3 times as heavy as formerly can be made. Bulletin Au-76.

Pickling Inhibitors

A pamphlet describing the nature and use of Grasselli Inhibitors is available to all those interested in the pickling of steel. It not only describes the merits of these inhibitors, but it gives a table of suggested inhibitor strengths to be used in the pickling of the various grades of steel. Bulletin Ap-95.

"Vee-less" Arc Welds

New literature covering a very recent development in arc welding has been prepared by Metal & Thermit Corp. Known as Murex Straight Gap welding, the new process eliminates grooving or "veeing" the edges even of heavy plates. Welding time is halved and other savings are effected, it is claimed. Bulletin My-64.

Aluminum vs. Corrosion

In the carefully prepared booklet, "Combating Chemical Corrosion with Alcoa Aluminum," published by Aluminum Co. of America, effects of various corrosive agents upon aluminum and its alloys are described in detail. It is an excellent and convenient source of information on this subject. Bulletin Sp-54.

High Cr Cast Iron

A pamphlet describing foundry production of cast irons containing from 15 to 30% of chromium has been issued by Electro Metallurgical Co. These cast irons do not grow or scale after repeated heatings and are excellent for high temperature work. Bulletin Ma-16.

New Furnace Blowers

Two new types of Turbo-Compressors are described in recent publications of Spencer Turbine Co. Uses for the ⅛ hp. Turbo are presented, as is a description of the new single stage Turbo-Compressor which affords tremendous economies in low pressure gas and oil fired equipment. Bulletin Sp-70.

To Prevent Rust

The well known rust preventive, No-Ox-Id, is now available from Dearborn Chemical Co. as a foundation for paint. It is available in the colors red, gray or black. A booklet explains how maximum resistance to corrosion can be obtained. Bulletin Ju-36.

Big-End-Up

Gathmann Engineering Co. briefly explains the advantages of steel cast in big-end-up ingots, showing the freedom from pipe, excessive segregation and axial porosity. An 82% ingot-to-bloom yield of sound steel is the usual practice. Bulletin Fe-13.

Scleroscopes

The model D standard recording scleroscope is described and illustrated in a recent publication of Shore Instrument Co. The theory and practice of hardness testing with this portable machine as described in this bulletin reveal a fund of valuable facts. Bulletin S-33.

Maintenance Welding

This interesting booklet describes the use of the oxyacetylene process in the reclamation of broken and worn machine parts, alteration, fabrication and installation of equipment. Such equipment as piping, tanks, machine elements, engine and pump parts and conveying systems is covered in the 16-page illustrated booklet of Linde Air Products Co. Bulletin Jl-63.

Electric Furnaces

Full details of the line of electric furnaces made by Hoskins Mfg. Co. are well presented in their latest 42-page catalog. Contents include description and data on 17 types of furnaces and some valuable information on Chromel resistance wires and thermocouples. Bulletin Sp-24.

X-Rays in Industry

General Electric X-Ray Corp. has available a profusely illustrated brochure entitled "Industrial Application of the X-Ray," which gives the complete story of the field of application of this modern inspection tool. Valuable information is presented. Bulletin Ma-6.

Low Cost Recorder

Inexpensive dependability in measuring and recording temperature is the great asset of the new Leeds & Northrup round chart Micromax indicating recorder which brings the reliability and easy maintenance of the motor-driven null recorder to a new low cost. Bulletin Ap-46.

Heat Resisting Alloys

Authoritative information on alloy castings, especially the chromium-nickel and straight chromium alloys manufactured by General Alloys Co. to resist corrosion and high temperatures, is contained in one of that company's publications. Bulletin D-17.

Cyanide Baths

Much practical information on the heat treatment of steels with cyanides and salts is contained in a descriptive booklet of E. I. duPont de Nemours & Co., R. & H. Chemicals Dept. The booklet contains many valuable suggestions for improved quality heat treating. Bulletin Sp-29.

New Foxboro Pyrometer

Foxboro Co. describes the new Foxboro potentiometer recording pyrometer in a recent bulletin. The outstanding features are a new design of balancing mechanism, ability to make from one to six records, a 12-in. chart, rapid recording cycle and a moisture-proof case. Bulletin Au-21.

What Exhibitors Will Show

Ford Sales Co., J. B., Wyandotte, Mich. Booth 12.
Exhibiting: Specialized cleaners and alkalies including latest developements in metal cleaners for cleaning before all electro depositions; cleaning before bonderizing and all finishing operations such as lacquering, japanning, vitreous enameling, assembling, etc. Cleaning aluminum and aluminum alloys prior to anodic treatment. Paint, Japan and enamel strippers. Miniature cleaning tanks made of glass containing air agitated cleaning solutions. These tanks are illuminated. Large picture of plant and display of various metal products treated with Wyandotte specialized cleaners prior to the many finishing operations.
In attendance: C. B. Robinson, general manager; B. N. Goodell, manager industrial department; W. M. Cole, assistant manager, industrial department; C. R. Beaubien, and C. L. Southwick, industrial department.

Foxboro Co., Foxboro, Mass. Booth 35
Exhibiting (in operation): A complete line of measurement and control instruments for steel treating. The new recording potentiometer—both single and multiple record—will be shown in operation. The latest design in potentiometer controllers, meters, air and electrically operated controllers, gages, and thermometers will be found in the booth.
In attendance: C. E. Sullivan, general sales manager; S. C. Horn, sales manager pyrometer division; A. B. Bates, district manager, Cleveland; C. E. Hellenberg, sales engineer.

Gas Machinery Co., Cleveland, O. Booth Gas Section.
In attendance: W. E. Steinwedell, president; T. F. Schilling, engineer; Wm. Steinwedell, secretary.

General Alloys Co., Boston. Booth 32
Exhibiting: Nickel-chromium alloy, Q-Alloys; carburizing and annealing containers; cyanide and lead pots; furnace hearths, roller rails, heat and acid resisting chain, cyanide dipping baskets, recuperators, miscellaneous furnace parts, parts for every type heat treating furnace—carburizing, annealing, normalizing, hardening, tempering, forging, spheroidizing, tubes and retorts; corrosion and abrasion resisting castings.
In attendance: H. H. Harris, president; G. C. McCormick, vice president; R. D. Alger, general superintendent; W. R. Blair, engineer; R. M. Kirk, New York representative; Ralph Hare, New England representative; A. L. Grinnell, Detroit representative; G. J. Hawkey, Cleveland representative; J. J. Donovan, Western manager; B. F. Harris, Chicago representative; Edw. W. Voss, Pittsburgh representative; Harry R. Patterson, Columbus representative; O. L. Rutledge, Cincinnati representative; Roy E. Lynd, Buffalo representative; A. H. Dillon, Youngstown representative.

General Electric X-Ray Corporation, Chicago. Booth 71.
Exhibiting: Selected radiographs, diffraction patterns and studies of heavier industrial pieces.
In attendance: E. V. Page, manager of industrial division.

General Gas Light Co., Kalamazoo, Mich. Booth Gas Section.

Globar Corp., Niagara Falls, N. Y. Booths 152 & 154.
Exhibiting (in operation): High temperature Globar electric heating elements. Engineers qualified to discuss all phases of high temperature electric heating will be present.
In attendance: A. H. Heyroth, general manager; K. E. Rogers sales manager; B. A. Bovee, chief engineer; N. H. Berry, W. S. Evans and L. C. Loshbough, engineers.

Gogan Machine Corp., Cleveland. Booth 51
Exhibiting (in operation): Direct depth reading Brinell hardness testing machines. Diamond electrically controlled hardness testers for hard material.
In attendance: Joseph Gogan, president; Mrs. H. M. Gogan, secretary; Dan T. Bradley, metallurgical engineer; Martin Steg, field manager.

Grasselli Chemical Co., Cleveland. Booths 153 & 130.
Exhibiting (in operation): Many iron and steel and other metal products. All of which were processed by one or more of the many Grasselli products. A portion of the exhibit will show the application and value of zinc and cadmium as protective coatings. Grasselli fluxes, crystal and liquid, for the tinning, galvanizing and soldering industries, will be exhibited in the many types of fluxes required by modern industry, a great many of which were pioneered and developed by Grasselli. Grasselli Inhibitors 3 and 8 will be displayed with a practical small-scale demonstration of pickling various types of iron and steel, with and without inhibition.
In attendance: Robert Stall, Howard Effland and F. C. Zebornek, sales department; Clayton Hoff and Howard Blough, zinc sales department; H. G. Hobbs, experimental laboratory; C. J. Warrington, acids and chemicals division Canadian Industries, Ltd.

Harnischfeger Corp., Milwaukee. Booth 27.
Exhibiting (in operation): Electric arc welder; demonstration of newest developments; display of welded samples; display of electric motors.
In attendance: G. L. Drake, manager hoist and welder sales; Klaus L. Hansen, consulting engineer; W. V. Emery, welding supervisor; J. O. Ferch, advertising manager.

Haynes Stellite Co., Kokomo, Ind. Booth 120.
Exhibiting (in operation): Complete line of Haynes Stellite cutting tools, and products showing the application of hard facing to automobile valves and other machine parts. Hastelloy, the corrosion resisting alloy, and Haystellite, the diamond substitute, will also be shown. A lathe will be in operation with a Haynes Stellite cutting tool operating under the intense heat of an oxy-acetylene blowpipe, showing the unique "red hardness" of Haynes Stellite.
In attendance: R. L. Lerch, R. D. Gunther, J. C. Huston and G. Sykes.

Hobart Brothers Co., Troy, Ohio. Booth 58
Exhibiting (in operation): Hobart Simplified arc welders—both electric and gasoline engine driven. Special demonstrations of newly developed method for successfully arc welding electrolytic copper. Also demonstrations of welding other metals.
In attendance: E. A. Hobart, president; W. H. Hobart, vice president; Roy Smith, Michigan distributor; Robert Bercaw, factory instructor; W. J. Chaffee, factory sales.

Hollup Corp., Chicago. Booth 66.
Exhibiting (in operation): New design electric arc welder; line of electrodes for gas and electric welding.
In attendance: R. A. Davidson, general sales manager; O. L. Howland, eastern sales manager; Jules Muller, chief engineer; R. A. Bender; T. S. Wright, general manager.

Hones, Inc., Charles A., Baldwin, N. Y. Booth Gas Section
Exhibiting (in operation): Gas soldering furnaces; Gas melting furnaces; gas bench furnaces; gas immersion heating unit; gas burners of various descriptions for industrial uses.
In attendance: Charles A. Hones, president; Charles J. Hones, secretary; William R. Hones, vice president; B. L. Finn, Chicago representative; O. Stirling, Detroit representative.

Hoskins Mfg. Co., Detroit. Booth 123.
Exhibiting (in operation): Electric resistor furnaces of the smaller type; pyrometers, castings and heating-element alloys.
In attendance: W. D. Little, sales manager; C. S. Kinnison, advertising manager; R. P. Ellis, salesman; J. W. Moore, salesman; H. T. Hayes, export manager.

Houghton & Co., E. F., Philadelphia. Booth 53.
Exhibiting: The latest developments of the Houghton research staff in carburizers, quenching oil, heat treating salts, cutting oils, metal cleaners, rust preventives, drawing and stamping lubricants, pickling assistants as well as many parts processed with these materials. Also an entirely new type of industrial lubricant, known as Sta-Put lubricants, which have extremely high film strength due to a special polymerization treatment. The new "non-skid" leather belting, known as Vim Tred, which "grips the pulley like a non-skid tire grips the road" will also be exhibited in operation.
In attendance: G. W. Pressell, director of sales, Philadelphia; George S. Rogers, general sales manager, Philadelphia; V. W. Wells, advertising manager, Philadelphia; C. G. Schultze, distributor, Chicago; L. C. Dunn, H. E. Martin, W. G. Harbert, district managers, Detroit; W. A. Andrew, district manager, Battle Creek, Mich.; A. G. Elsby and W. A. Fletcher, district managers, Cleveland; C. E. Kite, district manager, Buffalo.

Illinois Steel Co. Booth 126.
See United States Steel Corp.

International Nickel Company, Inc., New York. Booths 2 and 31.
Exhibiting: Display is designed to illustrate in a broad way, the methods and facilities used by International Nickel Co. in the solution of metallurgical problems. A 10-minute moving picture film will be shown continuously dealing with the role played by research in modern industrial processes. A few outstanding examples of important applications of nickel alloys will be shown. Part of the space will be set aside as a "conference section" for the convenience of visitors who have problems to discuss with members of our engineering staff.
In attendance: Charles McKnight, assistant manager, Nickel department; R. A. Wheeler, publicity manager, Nickel de-

(Continued on Page Six)

American Welding Society Has Arranged Fine Program

All Meetings at Book-Cadillac Hotel

Monday, Oct. 2

Registration—Facilities will be provided throughout the week from 9:30 a. m. to 5:00 p. m., commencing October 2.

1:45 p. m.—Opening Session

Presiding officer—M. P. Bailey, chairman, Detroit section.

2:15 p. m.—Technical Session

Presiding officer—F. P. McKibben, president, A.W.S.

GAS CUTTING OF STRUCTURAL STEEL. Author to be announced later.

IMPACT RESISTANCE OF WELDED JOINTS, a Survey of the Literature by W. Spraragen.

USE OF SHIELDED CARBON ARC IN CLASS I WELDING, by E. W. P. Smith, consulting engineer, Lincoln Electric Co.

IMPACT VALUES OF WELD METAL, by J. C. Hodge, Babcock and Wilcox Co.

6:30 p. m.—Dinner Meeting, Board of Directors, Book-Cadillac Hotel

Tuesday, Oct. 3

9:45 a. m.—Technical Session

Presiding officer—J. J. Crowe, senior vice president, A.W.S.

MANUFACTURE OF SMALL EVERDUR TANKS BY WELDING, by Ira T. Hook, American Brass Co.

WELDING OF CHROME ALLOY STEELS, by W. B. Miller, Union Carbide & Carbon Research Laboratories.

GAS WELDING OF ALUMINUM. Author to be announced later.

WELDING OF NON-FERROUS METALS AND ALLOY STEEL, by representative, Thompson-Gibb Co.

WELDING OF INCONEL, by J. G. Schoener and F. G. Flooke, International Nickel Co.

2:00 p. m.—Technical Session

Fundamental Research in Welding

Presiding officer—C. A. Adams, director, American Bureau of Welding.

PHYSICAL PROPERTIES OF WELDED CAST STEEL, by Chas. H. Jennings, Westinghouse Electric & Mfg. Co.

TENSILE TESTS OF WELDED AND RIVETED STRUCTURAL MEMBERS, by R. P. Davis and G. P. Boomsliter, West Virginia University.

ELECTRIC ARC WELDING UNDER WATER, by N. S. Hibshman, W. R. Harvey and C. D. Jensen, Lehigh University.

EFFECTS OF MOTOR REACTIONS IN ELECTRIC WELDING, by W. R. Woolrich, J. Tarboux, University of Tennessee, and C. T. Raymo and W. B. Parker.

FATIGUE OF METALS, by G. E. Thornton, State College of Washington.

INTERNAL STRESSES IN WELDS, by C. T. Schwarze, New York University.

MAGNETIC CHARACTERISTICS OF DEPOSITED METAL, by Wendell F. Hess, Rensselaer Polytechnic Institute.

7:30 p. m.—Conference and meeting of Fundamental Research Committee, American Bureau of Welding. H. M. Hobart, chairman, presiding.

Wednesday, Oct. 4

9:45 a. m.—Presiding Officer, R. E. Powell, Western Electric Co.

Resistance Welding Session

AUTOMATIC CONTROLS FOR ELECTRIC WELDING, by H. W. Roth, president, Controloweld, Inc.

CONTROLLED WELDING, by O. C. Frederick, General Electric Co.

PRECISION SPOT WELDING WITH TUBE CONTROLLED CONTACTORS, by C. Stansbury, Engineering Dept., Cutler Hammer, Inc.

TIMING OF SPOT WELDING WITH REFERENCE TO CURRENT FLOW, by D. C. Wright, Chief Engineer, Electric Controller and Mfg. Co.

Afternoon—Inspection Trip. Leaving Book-Cadillac Hotel at 1:15 p. m.

This inspection trip, arranged by the Detroit Section, will include visits to the welding departments of the Kelsey Hayes Wheel Corporation, the Ford Motor Co., and an automobile body plant.

Thursday, Oct. 5

9:45 a. m.—Technical Session. Presiding officer to be announced later.

SHIPBUILDING WELDING, by G. H. Moore, Jr., Newport News Shipbuilding & Dry Dock Co.

WELDING OF STRUCTURAL NICKEL STEEL, by W. L. Warner, Watertown Arsenal.

WELDING OF GALVANIZED STEEL, by Leon C. Bibber, Bureau of Construction & Repair, Navy Dept.

AN AIRCRAFT MANUFACTURER'S EXPERIENCE WITH WELDING QUALITY CONTROL, by T. H. Speller, welding engineer, and P. N. Jansen, factory manager, Curtiss Aeroplane & Motor Co.

2:00 p. m.—Technical Session

Presiding officer—M. P. Bailey, chairman, Detroit section.

SHOP SETUP FOR PRE-FABRICATION OF WELDED MACHINERY, by Mr. Kondal, Wickes Boiler Co.

MODERN RAIL WELDING WITHOUT INTERRUPTING TRAFFIC, by J. H. Deppeler, Metal & Thermit Corp.

PRESSURE REGULATORS AND REGULATION PROBLEMS, by Geo. M. Deming, Air Reduction Sales Co.

WELDING IN THE AUTOMOTIVE INDUSTRY. Author to be announced later.

AUTOMOBILE WELDING. Author to be announced later.

7:00 p. m.—Annual Banquet followed by dancing. Book-Cadillac Hotel

DEARBORN DESERVES A VISIT

Early American Life Pictured

Out at Dearborn, not far from Detroit, are the Colonial Village and Edison Institute Museum which Henry Ford is building. These will undoubtedly prove interesting to many who are going to Detroit to the National Metal Congress and Exposition.

The Colonial Village is a full size typical early American village built around a "green" according to the custom of those times. About the green stands the public village, church, school, inn, store, court house and town hall, and nearby are some 50 other old buildings, mostly original but a few in replica, containing authentic furnishings and equipment.

The Museum is a record of human and technical history and is an excellent educational exhibition. A reproduction of the buildings and equipment at Menlo Park, where Edison worked for so long, will likewise interest many.

The Village and Museum are open daily and Sunday during the day. Tickets may be obtained at the reproduction of an old depot on Michigan Ave. in Dearborn.

Wire Association Programs List Papers of Great Practical Value

Monday, Oct. 2
Registration and headquarters at Book-Cadillac Hotel
Tuesday, Oct. 3
Technical Session—Kenneth B. Lewis, Chairman

SIZING AND RESIZING CARBIDE AND DIAMOND DIES FOR COPPER WIRE DRAWING, by J. J. Kehoe and F. D. Ruhl, General Electric Co.

THE WIRE MILL DRAWING DIE, by Kenneth B. Lewis, consulting wire mill engineer, Worcester, Mass.

In connection with every paper presented at these sessions, about 10 questions will be presented for discussion.

Wednesday, Oct. 4
Morning Session on Effect of NRA on Costs and Operations
Ralph K. Clifford, Chairman

NRA OPERATIONS COMPARED WITH EUROPEAN WIRE CARTEL PRACTICES, by Lieut. Frank W. Bullock, U. S. A., now engaged in research work at Harvard School of Business Administration.

2:30 p. m.—Annual Meeting of Wire Association—Book-Cadillac Hotel

Thursday, Oct. 5
Session on Copper and Copper Alloy Wire
W. D. Pierson, Chairman

COPPER ALLOY WIRE, by James T. Kemp, American Brass Co.

INTRODUCE NEW THUMB SCREWS

Parker-Kalon Corp. has introduced a new product—cold-forged thumb screws, made by a new and improved process. These have none of the defects usually found in pressed steel, malleable iron, and drop-forged thumb screws or those of two-piece construction. A complete range of sizes is carried in stock.

Employment Service Bureau

Address answers care of A. S. S. T., 7016 Euclid Ave., Cleveland, unless otherwise stated.

METALLURGIST: University graduate, 32 years old, 6 years in chemical analysis, metallography, testing, heat treating and plant operation. Can specify materials, supervise laboratory and heat treating department and conduct research. Past year at University of Michigan doing graduate work. Box 9-5.

METALLURGIST: 23 years old, now employed as mechanical draftsman. Has certificate in metallurgy from Case. Would like position in metallurgical laboratory with chance for advancement. Box 9-10.

CHEMIST - METALLURGIST: Accomplishments include chemical analysis, physical testing, metallography, heat treating, etc. Work has covered both ferrous and non-ferrous industries including ferro alloys of the rare metal group. Box 9-15.

METALLURGIST: 1932 graduate from Case, Tau Beta Pi. Now employed in non-metallurgical work but anxious to return to chosen field. Excellent references. Box 9-20.

METALLURGIST: B. S. and M. S. in Metallurgy from Case in 1932 and 1933 respectively. Member of Sigma Xi. Good worker. Box 9-25.

NON-FERROUS METALLURGIST: Degrees of B. S. and M. S. in Metallurgy. Experienced in refining copper and zinc. Considerable testing experience and trouble shooting, especially in mining operations. Box 9-30.

METALLURGICAL ENGINEER: Ph. D. in Metallurgy; 32 years old. Practical experience includes tool steel development and trouble shooting in connection with heat treatment of tools; in charge of metallographic laboratory working both on ferrous and non-ferrous; research experience in melting and in testing. Box 9-35.

FORGE SHOP METALLURGIST: 15 years in forge plant in charge of heat treatment and chemical work. Experienced in meeting most rigid specifications of government and railroads and competent to take care of all problems relating to exacting forge shop practice. Box 9-40.

GRADUATE METALLURGIST: 14 years experience on steel problems connected with chemical and metallurgical investigation, production, plant management and sales engineering. Well recommended. Box 5-20.

HEAT TREATER: Wide experience in heat treating tool and alloy steels for prominent Chicago firms. Have technical background as well as experience in practice. Box 9-45.

METALLURGIST: Graduate of M. I. T. with degrees of B. S. and M. S., specializing in physical metallurgy. Now employed in large laboratory specializing in ferrous development work and production trouble shooting. Box 9-50.

METALLOGRAPHER: 3 years as assistant chemist and engineer of tests for well-known railroad. Devoted past year to post-graduate work in metallography. Expert chemist. Box 9-55.

PHYSICIST: Ph. D. with 7 years industrial experience desires development research position. Knows spectroscopy, X-ray analysis, radiography, magnetic materials and wire drawing. Former National Research Fellow. Box 9-60.

HEATING ENGINEER: Unusually wide experience as industrial heating and sales engineer for leading manufacturers. My experience should be valuable to furnace builders at this time either in an engineering or sales capacity, or as both. Box 9-65.

METALLURGIST: Wide experience as metallurgist and chemist in automotive field; 9 years with car manufacturer and 5 years with parts maker. Box 9-70.

METALLURGIST: Three years in large research laboratory testing materials and heat treating metals. Experience includes standard mechanical tests, fatigue testing, and creep at high temperatures, also metallography. Box 9-75.

What Exhibitors Will Show

partment; E. J. Bothwell, Nickel Sales department; H. S. Lewis, Nickel Sales department; T. H. Wickenden, assistant manager, Development and Research department; H. J. French, in charge alloy iron and steel development; J. S. Vanick, F. B. Coyle, E. J. Hergenroether, A. G. Zima, G. F. Geiger, J. W. Sands, T. J. Wood and R. Worthington, development and research department.

Iron Age Publishing Co., New York. Booth 73
Exhibiting: Current issues of Iron Age.
In attendance: F. J. Frank, president; C. S. Baur, general advertising manager; Emerson Findley, central western representative; B. L. Herman, western New York representative; Pierce Lewis, Detroit and Cincinnati representative; C. H. Ober, New York representative; W. B. Robinson, Pittsburgh representative; W. C. Sweetser, New Jersey representative; D. C. Warren, New England representative; H. K. Hottenstein, western representative; C. Lundberg, Philadelphia representative; J. H. Van Deventer, editor, W. W. Macon, consulting editor; G. L. Lacher, managing editor; R. E. Miller, associate editor; T. H. Gerken, associate editor; Burnham Finney, Detroit editor; G. Ehrnstrom, Jr., Pittsurgh editor, F. L. Prentiss, Cleveland editor; R. A. Fiske, Western editor.

Jones & Laughlin Steel Corp., Pittsburgh. Booth 37.
Exhibiting: The largest display of J & L steel products ever shown at the National Metal Exposition. These will be displayed against a specially built background of steel mill scenes, two of which are animated to present true pictures of operations in a J & L open hearth department and steel plant. Recently announced products expected to attract attention are J & L improved bessemer screw steel, J & L hot rolled seamless boiler tubes and J & L seamless mechanical tubing. The screw stock display will feature parts for which it is being used with production increases ranging from 11% to 99%. Other J & L products to be displayed include: Jalcase, hot rolled and cold finished; spring wire; cold heading wire; merchant wire products; turned and ground shafting; wide cold rolled flats; tin plate; steel piling; junior beams; light weight channels; bars for concrete reinforcement and a complete line of seamless and welded tubular products.
In attendance: Wm. B. Todd, general manager of sales; J. D. Allen, manager cold finished sales; S. L. Case, supervisor of research; C. C. Henning, metallurgist, Pittsburgh works; J. H. Flaherty, metallurgist, Aliquippa works; J. E. Beck, metallurgical engineer; C. F. Goldcamp, metallurgical engineer, and G. E. Congdon, advertising manager, all of Pittsburgh, and F. D. Heath, district sales manager, W. E. Danz and R. W. Light of Detroit. Also in attendance will be W. J. Bothwell, vice president, J. T. Ferris, treasurer, and J. W. Robinson, metallurgist, of Higgins-Bothwell Co., Detroit, sales representative for J & L cold finished steel.

Kelley Co., J. W., Cleveland. Booth 41.
Exhibiting: Industrial oils; carburizing compounds and heat treating salts.
In attendance: J. W. Kelley, president; Fred Michels, sales manager; C. M. Vincent, Ben Platell, A. A. Anderson.

Kelley-Koett X-Ray Mfg. Co., Covington, Ky. Booth 64.
Exhibiting (in operation): Industrial X-ray equipment for inspection of steel up to 4½" thick; X-ray equipment for continuous visual examination of articles on production line; X-ray diffraction apparatus for metallurgical testing and research. A special feature of the exhibit will be a scaled model of the largest X-ray installation in the world with a capacity of better than one million volts. This model is a duplicate of apparatus now actually in operation. Another feature of this exhibit will be a selected group of films showing various applications of X-ray inspection to industrial problems of all types.
In attendance: G. E. Geise, president; W. S. Werner, vice president; W. T. Weber, sales manager; C. A. Poole, director industrial research; C. L. Sherratt, Detroit manager; R. P. Moore, Detroit salesman; C. V. Donielson, Detroit service engineer.

Kemp Mfg. Co., C. M., Baltimore. Booth, Gas Section.
Exhibiting (in operation): Iudustrial carburetor for premixing air and gas in predetermined ratio; immersion melting with gas; model automatic lead casting and charging unit; special burner equipment for industrial heating operations.
In attendance: E. B. Dunkak, sales manager; W. S. Bassett, sales engineer; Wm. Hunt, supervising engineer.

Kompak Co., New Brunswick, N. J. Booth, Gas Section.
Exhibiting (in operation): One No. 5 M Kompak large volume water heater, connected to 100 gallon copper tank. This is a new type water heater for large tanks, with motor driven circulation pump and forced draft.
In attendance: H. J. Long, president.

Leeds & Northrup Co., Philadelphia. Booth 168.
Exhibiting (in operation): Vapocarb controlled atmosphere for Hump furnaces in which work is heated with no trace of scaling, pitting or decarburization, and without use of packing. Procedure for the operator is exactly as with any Hump furnace. A phenomenally fast recorder—the Speedomax—will also be shown. This machine records the temperature of moving billets as they leave a heating furnace, and records temperature fluctuations along a rail passing through a rolling mill. It responds to fluctuations in the temperature of the smoke from a burning cigarette five inches away, and shows the difference between temperature of inhaled and exhaled breath when a suitable thermocouple is held near the observer's lips. The L. & N. exhibit will also feature the latest developments in Micromax recording and controlling potentiometer pyrometers, including the round chart Model R Micromax never before shown at a National Metal Exposition.
In attendance: G. W. Tall, sales manager, industrial division; Henry Brewer, manager, market extension division; E. B. Estabrook, A. F. Moranty, Jordan Korp, T. C. Smith and Jas. M. Plummer.

Leitz, Inc., New York. Booth 174.
Exhibiting (in operation): The latest type of the well-known Micro-Metallograph MM. The improved arc lamp will merit favorable comment. Of even greater interest is the Darkfield illumination equipment by means of which heretofore impossible determination can be made. We are also showing the Leitz simplified model of this instrument. At moderate cost it includes all essential equipment and offers a range of magnification and efficiency almost equal to that of the large instrument. The Guthrie-Leitz automatic grinding and polishing machine, both in single and double spindle model, will be displayed with special specimen holders. Also the latest type of universal and differential dilatometer. For the first time we present in this country a universal photomicrographic apparatus with special arrangement for macrophotography. This instrument likewise serves as a profile projection and drawing apparatus with a high degree of exactness. For photomicrography in reflected light a new type of ring illuminator furnishes absolutely even illumination. Our large profile projector measures speedily and precisely a great variety of objects. An important feature is the Frey automatic measuring stage for testing the pitch of screws and measuring block gages, etc.
In attendance: W. Zieler, technical director; Fred Schenk, factory superintendent, and Oscar Soetbeer, sales representative.

Lincoln Electric Co., Cleveland. Booth 102.
Exhibiting (in operation): Automatic welding, hand welding, all kinds of electrodes for steel, cast iron, stainless steel, high manganese steel, aluminum, etc. Also exhibiting open type and totally enclosed fan-cooled type motors. Also starters for motors.
In attendance: A. F. Davis, vice president; Vladimir Peters, and Morris Taylor, welding technicians; J. M. Robinson, district manager; C. H. Buckmaster, J. C. Shugars and R. M. McClain, welding engineers.

Linde Air Products Co., New York. Booth 120.
Exhibiting (in operation): A full line of oxy-acetylene welding and cutting equipment, welding rod and supplies including four new Oxweld cutting machines. These are the Oxweld Secator, a small, handy portable machine; the Oxweld Pantosec, a larger machine for stationary use; the Oxweld straight-line cutting machine and the Oxweld pipe-cutting machine. The Oxweld portable weld testing machine will also be shown.
In attendance: F. Langstrom, V. E. Krohn, G. W. Mittler, F. W. Moesinger, T. C. Fetherston and G. Kimberly.

Madison-Kipp Corp., Madison, Wis. Booth 29.
Exhibiting (in operation): Kipp-Caster No. 15 and Kipp-Caster No. 40 Semi-Automatic Die Casting Machines. Kipp-Caster No. 15 will be in operation during the entire week of the Show, actually making commercial die castings. This is a very spectacular machine. Also complete line of Kipp air tools. Air grinders operating from 40,000 to 60,000 R.P.M. will be in operation. Madison-Kipp lubricators for application to machine tools and engines; a display of die casting dies and typical die castings.
In attendance: T. E. Coleman, president; J. A. Coleman, vice president; A. T. Lillegren, sales manager; J. A. Courter, eastern sales manager; T. C. Korsmo, chief engineer, die casting division; R. J. Schultz, foreman, die casting department; Jack Walterschieb, operator; A. S. Kidd, superintendent; Einar Peterson.

Maehler Co., Paul, Chicago, Booth Gas Section.

Magnetic Analysis Corp., Long Island City, N. Y. Booth 80.

Manhattan Rubber Mfg. Division, Passaic, N. J. Booth 121.
Exhibiting (in operation): Thin wheels cutting off bar and tube stocks, hardened tool steel, such as drills and taps, and also gates from alloy castings. Also Campbell No. 20 cut-off machine and No. 40 sprue cutter, which is being introduced for the first time.
In attendance: L. J. Daly, H. D. Gilbert, C. M. Lawton, W. H. Steinberg.

Marburg Bros., Inc., New York. Booth 88.

Metal & Thermit Corp., New York. Booth 144.
Exhibiting (in operation): Thermit welding supplies and equipment; Murex heavy mineral coated electrodes for electric arc welding.
In attendance: J. B. Tinnon, sales manager, New York; J. H. Deppeler, chief engineer, New York; C. D. Young, district manager, Chicago; H. T. Thompson, district manager, Pittsburgh; L. J. Fenton, representative, Detroit; T. D. Ketchbaw, representative, Chicago; R. L. Browne, district manager, Albany.

Metallizing Co. of America, Inc., Los Angeles, Calif. Booth 33.
Exhibiting (in operation): Metallizing unit showing the ease and simplicity of melting, atomizing, and depositing various metals. We will also have a lathe with metallizer mounted on tool post showing the building up of shafts and spindles, using stainless steel, high carbon steel, and bronze. Various other demonstrations will include the repairing of cracked valve seats, building up undersize castings, bringing automobile pistons back to original diameter, and the metal spraying of tanks, crank shafts, coils and such.
In attendance: L. E. Kunkler, president; Charles Boyden, vice president and chief engineer; J. Gossner, vice president in charge of export sales; R. A. Axline, manager eastern branch; Charles K. Stipp, manager mid-western branch; R. E. Kunkler, head of educational department.

Metals and Alloys, New York. Booth 60.
Exhibiting: Metals and Alloys, "The Magazine of Metallurgical Engineering."
In attendance: Dr. H. W. Gillett, editorial director; Richard Rimbach, editor; Philip H. Hubbard, publishing director; Wm. P. Winsor, advertising manager; G. E. Cochran, district manager, Chicago territory; R. M. Creaghead, district manager, Cleveland territory.

Michigan Steel Casting Co., Detroit. Booth 111.
Exhibiting: Misco Metal cast and sheet carburizing boxes; Misco Metal cyanide and lead pots; Misco Metal corrugated pusher furnace trays; Misco Metal furnace rails, furnace parts, etc.; Misco Metal sheet dipping baskets; Misco Metal furnace conveyor belt section and operating model; polished Misco "C" propeller wheels; polished Misco "C" anchors, fittings, etc.; Misco compression fittings for light wall stainless tubing; Misco "C" valve castings.
In attendance: E. D. Flintermann, sales manager; J. D. Corfield, sales engineer; I. Traynor, Detroit sales representative; J. W. Johnson, Michigan sales representative; W. E. McGahey, Indiana sales representative; A. A. Gould, Ohio sales representative.

Michigan Tool Co., Detroit. Booths 48 and 69.
Exhibiting (in operation): One Michigan gear finishing machine, showing method of finishing green gears before hardening. Also a Michigan gear lapping machine. A spiral gear checking machine, an involute form checking machine and several other checking devices for determining accuracy of gears. Also cutting tool products, such as gear shaper cutters, form cutters, hobs and miscellaneous other cutting tools. Also complete exhibit of broaches from our affiliated companies, Colonial Broach Co., and taps from Detroit Tap & Tool Co.
In attendance: J. D. Rovick, sales engineer; C. R. Staub, sales engineer; F. E. Henderson, J. McKay, G. R. Scott.

Micro Products Co., Peoria, Ill. Booth 83.

Milne & Co., A., New York. Booth 104.
Exhibiting: Drill steel, alloy steels, high speed steel, tool steel, file steel, Swedish Lancashire iron and Swedish all-steel anvils.
In attendance: H. S. Hoyt and J. King Hoyt, Jr., members of firm; V. A. Greene, sales manager; H. R. Adams, Chicago branch manager; E. R. Carnell, sales representative.

Minneapolis-Honeywell Regulator Co., Minneapolis. Booth 119.
Exhibiting (in operation): Motorized valves for industrial furnaces, ovens and other equipment operated in accordance with two-position, three-position, floating or proportioning modes of control in heat treating and steel mill processes. Proportioning and Modutrol all-electric

(Continued on Page Seven)

Cooley Electric Furnace Co., Long Island City, N. Y., has issued an excellent descriptive folder of their line of Bluehead electric furnaces. These are equipped with the Doreco heating element developed by the Doherty Research Co. Copies of the folder may be obtained from the Cooley Electric Furnace Co. upon request.

What Exhibitors Will Show

systems of automatic and remote control which revolutionize furnace temperature and atmosphere regulation. Geared motors for vent damper and large valve applications. Final safety shutoff or stop valves. Temperature, pressure and Protectoglow combustion safety controllers. Regulators for air conditioning, unit heater, refrigeration and boiler furnace automatic combustion control services. Con-Tac-Tor mercury switches.

In attendance: R. L. Goetzenberger, manager industrial regulator division; W. F. Arnoldy, manager Detroit branch office; F. A. Rodgers, manager Cleveland branch office; J. E. Kelley, Detroit office; C. W. Lugar, Cleveland office; E. E. Whitaker, Pittsburgh office; R. G. Taylor, Chicago office; V. P. Tassi, New York office.

Molybdenum Corp. of America, Pittsburgh. Booth 55.
Exhibiting: Samples of metallurgical and chemical products manufactured by the Molybdenum Corp. of America.
In attendance: Marx Hirsch, president; E. A. Lucas, vice president; W. H. Phillips, vice president; Earl Steward, Western district manager; H. P. Furlong, Detroit district manager.

National Carbon Co., Cleveland. Booth 120.
Exhibiting: Applications of the modern lubricant, Gredag, and a complete line of carbon products including machine brushes and electrodes.
In attendance: A. Broggini and W. C. Kalb.

National Tube Co. Booth 126.
See United States Steel Corp.

New Jersey Zinc Co., Inc., New York. Booth 163.
Exhibiting: The newer uses of zinc die castings in the automotive field without, however, laying too much stress on this type of application; for automotive engineers are always alert to design trends in highly diversified fields. For this reason we shall show the die casting assemblies of a gasoline pump, a meat slicer, a Ditto duplicating machine, a hand saw, a lathe. Each of these contains many quite interesting applications of zinc die castings. Besides these larger exhibits there will be on display many diverse castings, showing many of the properties of the newer zinc alloys.
In attendance: A. E. Mervine, manager metal division; W. P. Hardenbergh, Jr., assistant manager metal division; D. P. Brannin, metal division; C. R. Maxon, S. E. Maxon and W. W. Broughton, technical service division; R. Davison, manager market development division; R. L. Davis, market development division.

Norton Co., Worcester, Mass. Booths 162 and 164.
Exhibiting: Alundum and Crystolon grinding wheels; refractories.
In attendance: H. K. Clark, sales manager, Worcester; C. W. Jinnette, district manager, Detroit; G. A. Park, assistant district manager; Lucian Gay, Grand Rapids; K. E. Herrick, Paul Brown and W. T. Cushing, Detroit; F. L. Curtis, Jackson, Mich.; D. L. Price, Detroit; H. A. Blackburn, refractories division representative, Detroit.

Olsen Testing Machine Co., Tinius, Philadelphia. Booth 125.
Exhibiting (in operation): A new development in universal testing machines, with all parts entirely enclosed and with weighing system entirely mechanical and independent of the loading system. This weighing system eliminates the weighing of pressure and the use of hydraulic or Bourdon gages in any form, or any type of spring balance weighing and indicating system. A combined lever and pendulum system is used and can be depended upon. The latest Olsen ductility testing machine of hydraulic loading and weighing type will also be shown, providing for variable speed and constant speed of loading. Various types of hardness testing equipment will be demonstrated and also various types of strain gages and instruments. Also the latest development in dynamic balancing machine equipment for balancing rotating parts.
In attendance: R. B. Lewis; C. R. Tait; B. Erik Ohlson and T. Y. Olsen.

Park Chemical Co., Detroit. Booth 148.
Exhibiting: Heat treating materials; polishing products; lacquer rubbing compounds; stainless steel and platers' buffing compositions.
In attendance: J. N. Bourg, vice president; F. W. Faery, J. C. Thompson, and G. L. Nankervis, sales representatives.

Partlow Corp., New Hartford, N. Y. Booth Gas Station.
Exhibiting (in operation): Temperature controls and safety gas valves.
In attendance: Howard W. Partlow, president; Howard W. Partlow, Jr.; Oliver Stirling, Detroit manager; B. L. Finn, Chicago manager; A. M. Stock, vice president and New York manager.

Pels & Co., Inc., Henry, New York. Booth 25.
Exhibiting (in operation): Combination punch, plate, angle and bar shear and coper type MK 10 for punching, shearing, coping and notching plates and structural shapes without change of set-up. High speed shear and nibbling machine type AS 3 for cutting sheets to any desired shape, inside and outside.
In attendance: Curt L. Martin, president; J. A. Weigand, engineer.

Republic Steel Corp., Youngstown, O. Booth 50.
Exhibiting: Leading applications for Agathon alloy steels and Enduro stainless and heat-resisting steels. The display of Agathon alloy steel products will include sets of automotive transmission and differential gears, tractor drive gears, automotive forgings such as steering arms, truck axle and steering knuckles, ball and roller bearings, aircraft engine forgings and other aircraft parts, tools, tubing and miscellaneous materials. The display of Enduro stainless and heat resisting steels will include tubing, bolts and nuts, a miniature store front, a complete miniature model of a commercial building, beer bar, automobile wheel with stainless steel spider, ham boilers, sink, restaurant and domestic kitchen utensils, automotive trim parts, architectural sections and other miscellaneous products of popular interest. Displays of Toncan Iron pipe and Republic electric weld pipe will also be shown.
In atendance: B. F. Fairless, executive vice president; N. J. Clarke, vice president in charge of sales; R. J. Wysor, vice president in charge of operations; J. M. Schlendorf, manager of sales, alloy steel division; M. H. Schmid, assistant manager of sales, alloy steel division; G. F. Hess, assistant manager of sales, alloy steel division; L. S. Hamaker, manager of sales promotion; A. E. Walker, assistant vice president in charge of sales; W. M. Neckerman, assistant vice president in charge of operations; E. C. Smith, chief metallurgist; M. J. R. Morris, chief metallurgist, Central Alloy division; Arthur Schaeffer, sales manager of Detroit district office; W. J. Hanna, assistant sales manager, Detroit district office; C. W. Ruth, assistant advertising manager; L. M. Hogan, manager of promotion, Steel & Tubes, Inc.; C. F. Newpher, sales manager, Upson Nut division; C. H. Aiken, sales department, Upson Nut division.

Roebling's Sons Co., John A., Trenton, N. J. Booth 1.
Exhibiting: Welding wire.
In attendance: G. W. Swan, E. M. Dixon, Harry Swan and A. E. Gaynor, salesmen; F. J.Maple, advertising manager.

Selas Co., Philadelphia. Booth Gas Section.

Spencer Turbine Co., Hartford, Conn. Booth 117.
Exhibiting (in operation): A turbo compressor supplying air for operating gas furnaces being used by other exhibitors. Also 1 or 2 h. p. size of a new single stage turbo compressor recently brought out to meet the demand for a low priced blower, similar construction to our present multi stage machine but at about half the cost. Also showing a ⅛ h. p. blower, the smallest turbo compressor built for individual air furnace or air service. Also a 5 h. p. turbo with the casing made up of stainless steel for handling corrosive gases. Also ¾ h. p. portable heavy duty vacuum cleaner.
In attendance: H. H. Richardson, president; F. A. Wright, special representative; R. B. Richardson, local representative; O. B. Dingee, service engineer; R. A. Brackett, sales manager.

Steel (Penton Publishing Company), Cleveland. Booth 36.
Exhibiting: A rest room for convenience of visitors.
In attendance: C. J. Stark, president, Penton Publishing Co.; J. D. Pease, vice president, Penton Publishing Co.; E. L. Shaner, editor, Steel; E. C. Barringer, managing editor; E. F. Ross, associate editor; J. D. Knox, associate editor; A. H. Allen, associate editor; H. B. Veith, associate editor; Geo. O. Hays, business manager; L. C. Pelott, S. H. Jasper, John Henry, R. C. Jaenke and D. C. Kiefer, representatives.

Steel Publications, Inc., Pittsburgh. Booth 89.
Exhibiting: The publications Welding, Welding News, Heat Treating and Forging, Blast Furnace & Steel Plant, Directories of "Forging, Stamping & Heat Treating Plants" and "Iron & Steel Plants".
In attendance: D. N. Watkins, president; D. S. Watkins, vice president; Charles Longenecker, editor; L. R. Gurley, editor; I. Stanley Wishoski, editor; H. M. Reich, representative.

Stuart & Co., D. A., Chicago. Booth 9.
Exhibiting (in operation): The new D. A. Stuart & Co. high load carrying capacity lubricating oils and greases for industrial and automotive requirements. The much discussed Almen (General Motor Research) extreme pressure lubricant testing machine will be in operation daily checking the lubricity of unidentified lubricants that visitors are invited to furnish. There will also be a display of parts manufactured of stainless and other alloy steels. These parts demonstrate the smooth finish secured and the comparatively easy machinability made possible by the use of the Stuart cutting and drawing lubricants developed especially for such conditions. A display of Sturaco high load carrying capacity oils and greases for severe conditions such as high loads, high temperatures and high rubbing speeds will also be featured.
In attendance: C. I. Grierson, president; T. B. Langdon, director of sales; W. H. Oldacre, director of research and engineering; C. J. Nagel, Western New York manager; C. H. Baker, Ohio manager; and B. W. Deacon, Michigan manager.

Superior Steel Corp., Pittsburgh. Booth 45.
Exhibiting: Articles and parts made from our rust resisting and heat resisting material such as required for modern bright parts including automobile lamps, radiator shells tire covers, hood hinges, door handles, mouldings and various other articles where a permanent bright finish is desired, including various architectural and building hardware applications. Our rust resisting material is of a chrome-iron alloy containing high percentages of chromium with or without the addition of nickel.
In attendance: Frank R. Frost, president; John E. Wetzel, vice president; P. C. Jennings, treasurer; Wm. P. Ewing, assistant general manager of sales; Earl S. Park, district manager of sales; Lee D. Walters, assistant district manager of sales; K. W. Massey, C. B. Halle and M. E. Lowder, sales representatives.

Surface Combustion Corp., Toledo, O. Booth Gas Section.
Exhibiting (in operation): Atmosphere furnace, air heater, continuous gas carburizing display, burner equipment, diffusion combustion forge, photographs.
In attendance: F. H. Adams, vice president and general manager; C. B. Phillips, vice president and sales manager; H. M. Heyn, assistant sales manager; W. M. Hepburn, chief engineer; R. J. Cowan, chief metallurgist; E. G. De Coriolis, development engineer; W. T. Herdrich, Edw. Stephenson, Jr., W. O. Owen, H. J. Gregg and J. M. Brown.

Swedish Crucible Steel Co., Detroit. Booth 47.

Timken Steel & Tube Co., Canton, O. Booths 131 & 133.
Exhibiting: Timken tubing and Timken alloy steels for transmission and differential gears. These items will be built into a special display which will be semi-operated.

Udylite Process Co., Detroit. Booth 121.

Una Welding, Inc., Cleveland. Booth 127.

Union Carbide & Carbon Corp., New York. Booth 120.
Exhibiting (in operation): Products of various units of Union Carbide & Carbon Corp., including Linde oxygen, Prest-O-Lite acetylene, Union carbide, Oxweld welding and cutting apparatus, National Carbon products, Haynes Stellite, Hascrome, Hastelloy, Haystellite and Electromet ferro-alloys and metals.

United States Steel Corp. (American Sheet & Tin Plate Co., American Steel & Wire Co., Carnegie Steel Co., Illinois Steel Co., National Tube Co.) Booth 126.
Exhibiting: Various finished products manufactured from alloy steels, USS stainless and heat resisting steels, and USS Plykrome steels.
In attendance: W. I. Howland, Jr., J. B. Hammond, W. B. Weston, James A. Smith, Jr., L. B. Worthington, C. R. Moffatt, F. B. Mulvaney, George Fisher, Earl Davidson, J. H. Cook, H. W. De Berg, A. P. Happer, J. Hornbrook, G. W. Landrus, J. D. MacPherson, J. F. McIntire, Jr., H. R. Merritt, H. T. Miller, M. C. Miller, M. B. Sunderland, C. A. Timmons.

Vanadium Corp. of America, New York. Booth 6.

Vapofier Corp., Chicago. Booth 116.
Exhibiting (in operation): The Vapofier, a device for changing a distillate fuel from a liquid state to a gaseous state and mixing this hydro-carbon gas with air in combustible proportions. The Vapofier will be exhibited as applied to two high speed steel treating furnaces, complete with automatic temperature volume and quality control as successfully installed and operated in many well known treating plants formerly using gas heat.
In attendance: M. C. Bates, president; C. B. Faverty, chief engineer; C. E. Poyer and E. W. Hanegan.

Victor Saw Works, Inc., Middletown, N. Y. Booth 55.

Welding Engineer Publishing Co., Chicago. Booth 61.
Exhibiting: Magazines and books on welding. Welded specimens of metals and alloys.
In attendance: F. L. Spangler, K. B. Mackenzie, L. C. Monroe, T. E. Depew, A. Stephens.

Weldit Acetylene Co., Detroit. Booth Gas Section.

(Continued on Page Eight)

What Exhibitors Will Show

Wickwire Spencer Steel Co., New York. Booth 40.

Wilson Welder & Metals, Inc., No. Bergen, N. J. Booth 101.

Youngstown Sheet & Tube Co., Youngstown, O. Booth 54.
Exhibiting (in operation): In addition to an interesting metallography exhibit, we will show illuminated, hand colored, transparencies of views incident to the manufacture of steel. A feature of the exhibit will be a complete operating scale model of a tube mill, which will actually make small pipe. One will be able to conceive the manufacture of pipe by viewing this model as well as by a special trip to the mill.
In attendance: A. C. Badger, metallurgical engineer; W. W. Brown, manager of bar and wire sales; M. S. Curtis, manager sales promotion; R. H. Eurich, research engineer; H. R. Jones, charge of alloy steel division; J. D. Jones, alloy division; C. H. Longfield, general manager of sales; R. J. Mullally, Detroit district manager of sales; F. H. Nullmeyer, superintendent rod and wire division; A. N. Vogt, bar sales.

Ziv Steel & Wire Co., Chicago. Booth 20-A.

MINUTES OF THE LATEST A.S.S.T. DIRECTOR'S MEETING

Continued from Page One

The secretary reported splendid advance sale of space for the exposition.

A budget of expenses for the congress and exposition had been considered and approved during the discussion of the financial reports of the Society.

The secretary gave a report on the present status of the Handbook, indicating that the same was on the press and would be distributed to the members about October 15.

It was further generally understood that it was the desire of the board of directors that all books of the 1930 edition should be returned in order that a member might be eligible to receive the new edition (1933).

The proposed changes in the constitution and by-laws were then presented for consideration.

The board of directors had before it the report previously submitted by the special committee appointed at the January meeting to suggest proposed changes in the constitution, consisting of Mr. Zay Jeffries, chairman, Mr. F. Hughes, member, and Dr. A. E. [illegible]te, member. Published—*Review*.

They also had the result of the contact of the president with the executive committee of many of the chapters and at the same time the letters and communications which had been received from individuals and executive committees dealing with this subject.

The president reported that it was the general consensus of opinion among practically all of the chapters that a change in the constitution was desirable, and that, while there was some slight objection raised to a few features of the proposed changes, nevertheless the feeling was paramount that the proposed changes representd an improvement. [illegible] sentiment was also the tenor of the written communications received direct from members and chapters.

The board gave very thorough consideration to the proposed changes as submitted by Dr. Jeffries' committee and made the following three additional proposals:

(1) On page 3, paragraph (b), recounting the manner of selection of the members of the nominating committee by the president of the Society, it was agreed that there should be included in this paragraph the statement that in the selection of the members of the nominating committee the president of the Society should give consideration to the geographical distribution of the members of this committee so that there would be no possibility of all the members of the committee coming from one section of the territory covered by the chapters of the Society.

(2) That on page 3, paragraph (e), third line, the sentence now reading as follows:

"As an aid in reaching final selections, the committee may give consideration to a prospective candidate endorsed in writing by the executive committee of his chapter," etc., was changed and the sentence now reads as follows:

"As an aid in reaching final selections, the committee may canvass the executive committee for prospective candidates to be endorsed in writing by the executive committee of their chapters," etc.

The purpose of this change was to permit the chairman of a national nominating committee to write to the various executive committees of the Society requesting them to indicate to the committee the men in their chapter whom they felt worthy for consideration as possible officers and directors of the Society.

In that way a national nominating committee would have before it a large number of names all of which had been put forward by the chapter with an accompanying statement as to the reasons for their qualifications for national office.

It was contemplated that it might be possible that a nominating committee would be so constituted that its national acquaintanceship would not be very extensive and in such cases many men worthy of consideration for national office might be overlooked.

At the same time, while the above permits a chapter to make two or more suggestions of worthy men in their chapter for consideration, it still retains the original committee's suggestion by which multiple chapter endorsements of a prospective candidate are opposed.

(3) That no one chapter may have more than one representative on the board of directors of the Society during any one year, except that the national secretary, because of his membership on the board of directors, shall not be considered as barring the chapter of which he is a member from representation in compliance with the above regulation.

Upon motion by Mr. d'Arcambal, seconded by Mr. Eisenman and unanimously carried, the report of Dr. Jeffries' committee, together with the three additional changes indicated above, was unanimously approved for submission to the constitution and by-laws committee and to the membership of the Society for its approval.

The secretary was authorized to secure an attorney whose specialty was constitutions and by-laws of corporations to place the proposed changes in proper phraseology.

The board then gave consideration to a proposed change of the name of the Society.

It has long been realized, not only by previous boards of directors where the matter has been up for long and serious consideration, but also by the present board of directors and the executive committees of the chapters that the activities of the Society have outgrown its name. The activities of the Society being diverse and the present name being so limited, a great amount of confusion resulted not only in the minds of the members but also in the minds of executives of industries whose support the Society was entitled to receive.

President Coleman reported that in his visits with approximately 92 per cent of the chapters of the Society that the great majority of them had brought to his attention the desirability of a change in name of the Society to a name which would more nearly typify the aims and purposes and activities of the Society and permit the name to conform with the objects of the Society, as set forth in the constitution.

It was moved by Mr. Phillips, seconded by Mr. d'Arcambal and unanimously carried to submit to the membership of the Society a proposed change in the constitution to change the name of the Society from American Society for Steel Treating to American Metals Society.

Upon motion of Mr. Eisenman, seconded by Mr. Keshian and unanimously carried, the following tentative recommended practices were advanced to recommended practices:

"Tentative Recommended Practice of Case Depth Measurement.'

"Tentative Recommended Practice for Macro Etch Test."

"Tentative General Recommendations for the Heat Treatment of Tool Steels."

"Tentative Recommended Practice for the Heat Treatment of Blanking Dies and Punches."

"Tentative Recommended Practice for the Heat Treatment of Shear Blades."

"Tentative Recommended Practice for the Heat Treatment of Chisels."

The board of directors then gave consideration to the educational activities of the chapters. It was generally agreed that the members of the board should lend their influence to as great a degree as possible so that the educational activities carried on by the chapters should be conducted on a basis that should secure new members for the chapter and the Society.

Upon motion properly made, seconded and unanimously carried, the meeting adjourned.

A.S.M.E. Plans Big Day Oct. 4

Wednesday, Oct. 4

9:30 a. m—Henry II Room, Hotel Statler

Technical Session

Chairman—A. N. Goddard, of Goddard and Goddard, Detroit.

CHARACTERISTICS AND METHODS OF TESTS OF AUTOMOTIVE BRAKE DRUMS, by C. L. Eksergian, Budd Wheel Co., Detroit.

SIMPLICITY—THE SOLUTION OF EXTREME ACCURACY IN QUANTITY PRODUCTION, by Gordon M. Evans, Kelvinator Corp., Detroit.

Noon—Luncheon at plant of Kelvinator Corp., followed by an inspection trip through that plant.

COMMERCIAL METAL TREATERS ORGANIZE

To Form Code; Next Meeting in Detroit on Oct. 2

Men engaged in commercial metal treating held a meeting in Chicago on Aug. 18, and perfected a national organization to prepare a code governing the metal treating industry.

C. U. Scott, president of C. U. Scott & Son, Rock Island, Ill., was elected temporary president. Other pro tem officers elected were vice president—T. E. Barker, President Accurate Steel Treating Co., Chicago; secretary—W. H. Eisenman, 7016 Euclid Ave., Cleveland; treasurer—W. S. Bidle, president W. S. Bidle Co., Cleveland.

The following were elected directors: Fred A. Snow, Fred A. Snow Co., Chicago; Arthur H. Nuesse, Wesley Steel Treating Co., Milwaukee; L. A. Lindberg, Lindberg Steel Treating Co., Chicago; John Hulting, Perfection Tool Hardening Co., Chicago; O. T. Muehlemeyer, Rockford, Ill.; R. J. Thurner, Thurner Heat Treating Co., Milwaukee.

Horace C. Knerr, president Metlab Co., Philadelphia, is a member of the Code Steering Committee.

A meeting of the Institute has been called for Monday, Oct. 2, the first day of the National Metal Congress and Exposition, to be held in the Ivory Room at Hotel Statler, at which permanent officers will be elected and the code for the industry presented, considered and approved.

All individuals engaged in commercial metal treating are invited to be present at that meeting, whether they are members of the Institute or not.

HOUGHTON MEN PROMOTED

E. F. Houghton & Co., Philadelphia, announces the following changes and promotions in executive personnel.

Louis E. Murphy, president since 1929, continues in that capacity. Major A. E. Carpenter, first vice-president and treasurer, resigned the latter office and was elected general manager. George W. Pressell, second vice-president and secretary, resigned the secretaryship and was elected assistant general manager and director of sales. Dr. R. H. Patch, director of plants, has been elected treasurer. A. E. Carpenter III, assistant to general sales manager, was elected secretary.

George S. Rogers, formerly assistant general sales manager in charge of the St. Louis and Chicago offices, was appointed general sales manager with headquarters in Philadelphia.

J. & L. SCREW STOCK IMPROVED

Jones & Laughlin Steel Corp. has, by means of an advance in manufacturing method, increased radically the machinability of its bessemer screw steel. Production increases ranging from 11 per cent to 99 per cent have been accomplished in actual commercial applications.

The product is referred to by Jones & Laughlin as "J & L Improved Bessemer Screw Steel." It is not a new grade, having the same chemical analysis and physical properties of all bessemer screw steel. Necessary brittleness is retained, but the stock offers less resistance to the tool, according to the announcement. The new processing is also used in the manufacture of J & L special high sulphur bessemer screw steel, with greatly increased machinability.

JAMES W. OWENS NOW WITH P. T. L.

James W. Owens, prominent welding engineer, has been appointed by the Pittsburgh Testing Laboratory as consulting engineer and director of its new welding division, National Weld Testing Bureau. The Pittsburgh Testing Laboratory main offices are in Pittsburgh with branches in principal cities of United States, Canada, and foreign countries.

Complete Program of the Events Scheduled by A.I.M.E.

All Meetings at Hotel Statler

Wednesday, Oct. 4

2:00 p. m.—*Joint Session, Iron and Steel and Institute of Metals Divisions*

RELATION BETWEEN THE PLASTIC DEFORMATION IN DEEP DRAWING AND THE TENSILE PROPERTIES OF VARIOUS MATERIALS, by M. H. Sommer.

STUDIES ON CREEP OF METALS USING A MODIFIED ROHN TEST, by C. R. Austin and J. R. Gier.

6:30 p. m.—*Joint Dinner of Both Divisions*

Speaker—A. B. Kinzel, Union Carbide and Carbon Research Laboratories. Subject: SILICON.

Thursday, Oct. 5

9:30 a. m.—Institute of Metals Division Round Table

Non-Ferrous Metals in the Automotive Industry

1. Economies resulting from the use of non-ferrous metals in automotive parts.
2. Economies resulting from the use of non-ferrous cutting tools. Discussion by Zay Jeffries. Dr. Jeffries has worked extensively of late with tungsten and tungsten carbides.
3. The automotive uses of alloys possessing special expansion characteristics. Discussion by Robert G. Waltenberg, who is a recognized authority on special expansion alloys and their uses.
4. Bearings, including solid, bronze, and steel-backed and bearings made from pressed metal powders.
5. Finishing non-ferrous automotive parts.

10:00 a. m.—Iron and Steel Division Technical Session

X-RAY STUDY OF THE DIFFUSION OF CHROMIUM INTO IRON, by Lawrence C. Hicks.

TITANIUM AND COLUMBIUM IN PLAIN HIGH CHROMIUM STEEL, by F. M. Becket and Russell Franks.

IMPROVEMENTS IN VACUUM FUSION METHOD FOR DETERMINATION OF GASES IN METALS, by Lewis Reeve.

12:00 m.—

Luncheon, Executive Committee, Institute of Metals Division, Parlor A
Luncheon, Executive Committee, Iron and Steel Division, Parlor C

2:00 p. m.—Institute of Metals Technical Session

NOTES ON THE CADIUM-NICKEL SYSTEM, by C. E. Swartz and Albert J. Phillips.

COPPER EMBRITTLEMENT, III, by L. L. Wyman.

A TABLE OF THE RAPID INTERCONVERSION OF ATOMIC AND WEIGHT PERCENTAGES, by Cyril S. Smith.

Meeting of Sub-committee and Advisory Council on the Terminology of Impurities in Metals. Open to all interested.